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Integrated Resource Inventory

Physical Land Classification and Erosion Potential Rating of the Dry and Easy Creeks Watersheds

Alberta
ENERGY AND
NATURAL RESOURCES
Resource Evaluation
and Planning

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PHYSICAL LAND CLASSIFICATION AND EROSION POTENTIAL RATING OF THE DRY AND EASY CREEKS WATERSHEDS

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PHYSICAL LAND CLASSIFICATION AND EROSION POTENTIAL RATING OF THE DRY AND EASY CREEKS WATERSHEDS

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PREFACE

This report and accompanying physical land classification map provides data on the characteristics, location, and areal distribution of homogeneous soil landscape units of the Dry and Easy Creeks watersheds. A method of rating soil erosion (response to runoff) is outlined for quantifying water erosion potentials of the soil landscape units of the project areas.

The report provides background information on physiography, surficial deposits, landforms and soils of the areas. This is followed by discussion on erosion rating methodology and its application to the project areas.

A physical land classification photo-based map and an erosion rating map at a scale of 1:15 000 for each watershed accompany this report.

1. INTRODUCTION

A physical land classification inventory of the Dry and Easy Creeks watersheds was initiated in 1984 at the request of the Rocky-Clearwater Forest, Alberta Forest Service (AFS).

The study area is under forest cover and has potential for timber production. In disposing the areas for timber harvesting, there are two main management concerns: possible soil erosion from harvested sites and associated logging roads, and subsequent increases in sediment loads of the creeks.

The Rocky-Clearwater Forest is at present monitoring the flow rates and the sediment loads of Dry and Easy Creeks. Soil and landform characteristics of the watersheds have to be identified in order to establish certain standards, or norms, for reference in estimating erosion losses.

The main objective of this project was to provide a detailed physical land classification for the area with emphasis on the following land properties:

a) Landform parameters

- parent geologic material
- surface expression
- slope; soil creep
- dissected areas

b) Soil parameters

- soil type (subgroup level)
- surface texture
- subsoil texture
- soil drainage; seepage areas

Other erosion-related soil characteristics such as soil structure, soil consistence, and the thickness of unconsolidated material were also identified.

A terrain sensitivity application in terms of soil erosion rating was conducted to analyse and evaluate the physical land classification information of each delineated map unit area (geomorphic unit). The erosion rating using numeric values from 1 to 7 was provided for the geomorphic units in their existing vegetated state and also, for theoretical purposes, assumes the vegetation is removed.

A total of 85 sites in the Dry Creek watershed and 25 sites in the Easy Creek watershed were examined to determine the soil and landform characteristics of the project areas. These observation sites are indicated on the physical land classification map, and the resultant descriptions of the sites are presented in the Appendix.

2. DESCRIPTION OF STUDY AREA

2.1 Location and Size

The study area consists of two watersheds in the Rocky- Clearwater Forest southwest of the town of Rocky Mountain House (Figure 1). The Dry Creek watershed is within the North Saskatchewan River drainage system and includes all or parts of Sections 19, 29, 30, 31, and 32, Twp. 37, Rge. 10; Sections 9, 10, 13, 14, 15, 16, 22, 23, 24, 25, 26, 35 and 36, Twp. 37, Rge. 11; Sections 4, 5 and 6, Twp. 38, Rge. 10. The Easy Creek watershed is within the North Ram River watershed and covers all or parts of Sections 29, 30, 31 and 32, Twp. 38, Rge. 13; Sections 25, 26, 34, 35 and 36, Twp. 38, Rge. 14; Sections 5 and 6, Twp. 39, Rge. 13; Sections 7 and 2, Twp. 39, Rge. 14; West of the Fifth Meridian.

The two watersheds total approximately 60 km^2 (24 sq. mi.).

2.2 Physiography

Dry Creek originates in the Rocky Mountain Foothills at an altitude of about 1 980 m (6 500 ft.). From this point the creek flows north through a deeply incised valley about 580 m (1 900 ft.) below adjacent ridge tops at the entrance to the Shunda Benchland. As the creek leaves the confines of these steep valley walls, it enters the Shunda Benchland subregion where the valley floor widens appreciably.

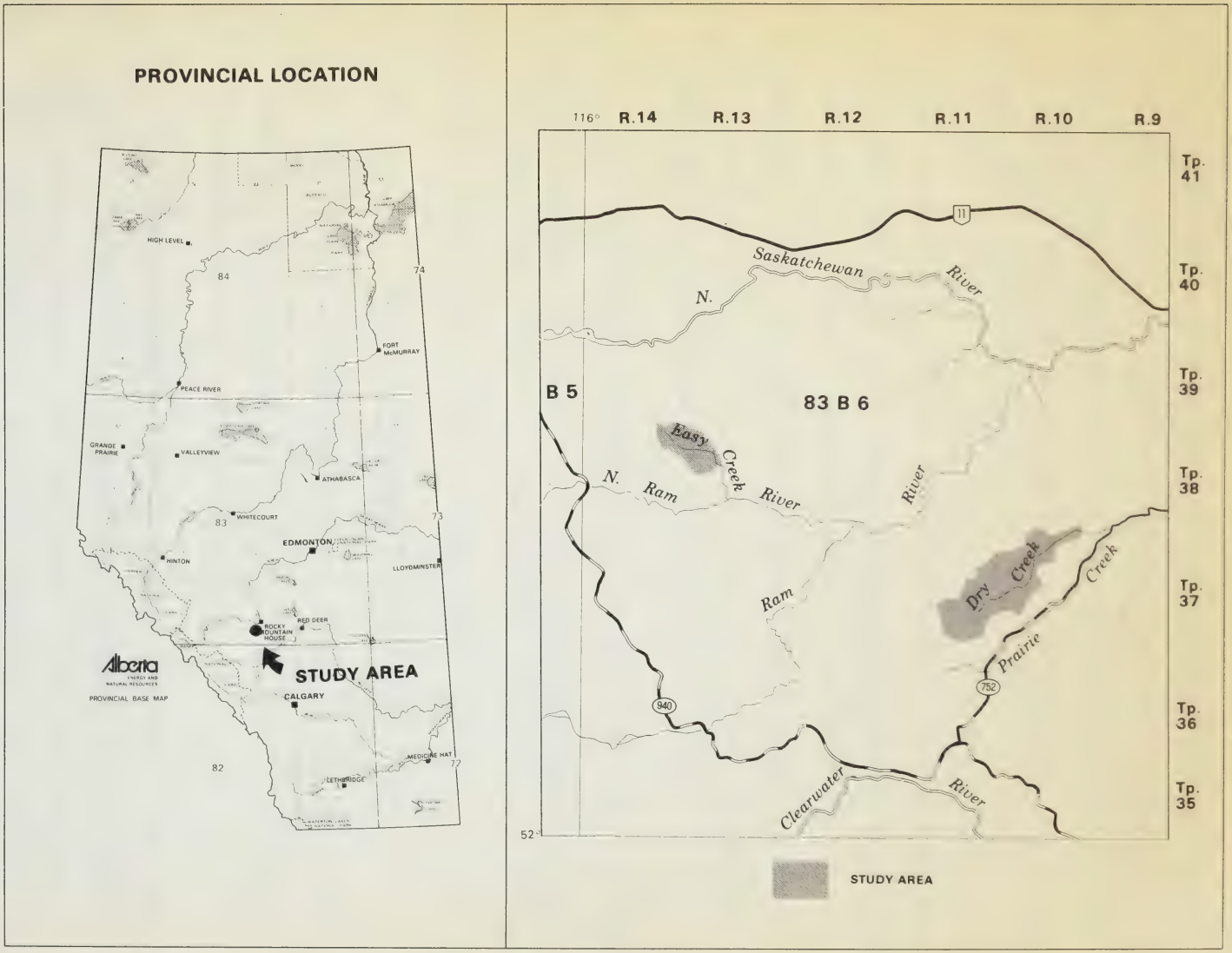


Figure 1: Location Map.

The Dry Creek basin ranges in width from 2.5 km (1.5 mi.) in the southeast to 4.5 km (3 mi.) in the central part and is about 14 km (9 mi.) in length. Altitudes vary from about 1 220 m (4 000 ft.) at the mouth of the creek near Lick Creek to about 1 980 m (6 500 ft.) at the southeastern boundary of the basin.

The Easy Creek watershed lies entirely within the Rocky Mountain Foothills and flows in a narrow valley with steep valley walls. Elevations in the basin range from about 1 910 m (6 260 ft.) at the northwestern tip of the watershed to about 1 380 m at the junction of Easy and Nice Creeks. A drop of 280 m (920 ft.) in altitude within 1.2 km (3 900 ft.) occurs in the central part of the basin.

The width of the watershed varies from 2.5 km (1.5 mi.) in the western section of the basin and reaches about 4.5 km (2.8 mi.) in the eastcentral area before the creek confines gradually to a narrow valley. The length of the basin is about 8 km (5 mi.)

2.3 Surficial Deposits and Landforms

The surfical deposits and landforms of the Dry and Easy Creeks watersheds were produced primarily by the major Wisconsin advance of the cordilleran glacier.

Dry Creek - Glacial till of varying thickness is the major surficial deposit in the area; however, inclusions of organic, fluvial, and colluvial materials are also present. Much of the basin is overlain by a thin (10 to 60 cm thick) veneer of loess with textures

ranging from fine sandy loam to silt loam. The till occurs as a blanket over most of the area, and the topography is somewhat influenced by the underlying bedrock.

The Dry Creek watershed is characterized by moderately to very strongly sloping, flat-topped ridges trending in a northeasterly direction. In the southeastern portion of the basin, numerous small tributaries deeply incise the area and produce very strongly sloping to steep, short ridges which are arranged in a dendritic pattern.

Easy Creek - The basin's dominate cover is by a veneer of till over weathered shale and sandstone. Small areas of colluvium, saprolite, and fluvial material are also present. A thin layer of loess varying in thickness from 10 to 25 cm is found on lower slopes.

The general landscape of the watershed is strongly affected by the topography of the underlying bedrock. It consists of moderately to strongly sloping, irregular ridges and erosional scarps which outline the boundary of the basin. The majority of these steep areas are dissected by frequent small channels and in a few locations the bedrock is exposed.

2.4 Soils

The predominant soils in the project areas are Eluviated Eurtic Brunisols and, to a lesser extent, Orthic Gray Luvisols, Brunisolic Gray Luvisols, Orthic Regosols, Gleysolic and Organic soils.

The Eluviated Eutric Brunisols are identified by an organic surface horizon (L-H) overlying a leached, generally silt loam, Ae horizon. The Bm horizon in which the pH is usually 5.5 or higher, occurs within 20 cm of the surface. The C horizon is generally clay loam in texture, and contains coarse fragments. Soils with rock substrates within 50 cm of the surface are common in the Easy Creek area.

The Orthic Gray Luvisols are found on smoother landscape and characterized by a clay accumulation horizon (Bt) which is clay loam to clay in texture, and exhibits moderately developed subangular blocky structure. The increased clay content of this horizon may act as a barrier causing seepage in some areas.

The Brunisolic Gray Luvisols are confined to moderately sloping areas associated with good drainage conditions. These soils are identified by a Brunisolic sequence of Ae and Bm horizons overlying a continuous textural Bt horizon. In areas where the soils are associated with loess overlays, the Bt horizon is found to encroach the underlying till.

The Regosolic soils are limited in the project areas. They are found mainly on colluvial and fluvial deposits where soil development is affected by the process of mass wastage or addition of new materials. The soils have weak horizon development and indicate uniform color values throughout the soil profile.

Poorly drained Organic and Gleysolic soils are found in low-lying, level to depressional areas which experience continuous groundwater discharge. The Organic soils in the project areas are generally at the advanced stage of decomposition and classified as Mesisol or Humisol. The Gleysolic soils are identified by the presence of distinct mottles of high chroma within 50 cm of the mineral soils. Some of these soils may have organic surface horizons up to 60 cm thick.

3. METHODOLOGY

The Physical Land Classification Methodolgoy (Land Classification Section, 1978) provides guidelines for the systematic delineation of land areas based on geology, geomorphology, landforms, soils and topography.

The classification includes four hierarchical levels: Physiographic Region, Physiographic Subregion, Geomorphic System and Geomorphic Unit. The geomorphic unit is a homogeneous area of land in terms of parent material, soil type, surface expression, slope, aspect and drainage. This is the fundamental unit that has been delineated on the physical land classification map and rated for erosion potential.

3.1 Interpretation

This inventory is based primarily on systematic aerial photo interpretation augmented by field data and existing information.

The detailed subdivision of the project areas was done by analysing aerial photography at a scale of 1:21 120. Geomorphic units were delineated on the photos and defined. The resultant preliminary physical land classification maps were used as a basis in the ensuing field work.

3.2 Field Procedure

The boundaries and the inferred characteristics of the delineated geomorphic units were verified and supplemented with field work conducted during June, July and August, 1984. Field plots were chosen

to characterize individual geomorphic units in terms of parent geologic material, soil, texture, landform, slope, surface expression and soil drainage. Other land features visible in the field, such as seepage areas, soil-creep and dissection, were also recorded.

4. EROSION POTENTIAL RATING

The erosion potential rating of the Dry and Easy Creeks watersheds is based on the guidelines outlined in the Terrain Sensitivity Classification Methodology (Crockett and Shelford, 1982); the basic assumptions and form were not altered. Field data, observations made during the inventory, and previous studies on soil erosion provided bases for most of the modifications.

The erosion potential rating of the project areas is based mainly on soil textures within 15 cm of the surface, and the steepness of slopes. Other erosion-related factors such as drainage and overburden instability are also incorporated into the rating. The resultant erosion potential ratings with classes ranging from 1 (not sensitive) to 7 (extremely sensitive) are arrived at by the addition of the respective codes assigned to each erosion factor. No value can advance to greater than 7 or smaller than 1. If value is larger than 7 or smaller than 1, it is indicated as 7 or 1 respectively. Rating values for both vegetated and vegetation-removed conditions are produced. Each value is supplemented by one or more alphabetic symbols indicating the primary (capital letters) and secondary (lower case letters) factors which have contributed to the numeric erosion potential rating.

4.1 Soil Texture

Soil texture refers to the relative amounts of sand, silt, and clay present. With few exceptions, soil contains mixtures of all three sizes and the proportions of each determine the soil textural class. The texture of soils is particularly significant in determining the susceptibility of soils to erosion and mass wasting. Fine textured soils have molecular surface bonding when dry and exhibit considerable cohesive resistance to movement; however, when these soils are disturbed, soil aggregates are destroyed and pulverization occurs, causing easy movement of soils by water. Coarse textured soils seldom have a well-aggregated structure and are easily dispersed. On the other hand, the large size and relatively heavy weight of the individual particles offer considerable resistance to movement by water. In addition, coarse textured soils have a high infiltration rate which limits the amount of runoff. Medium textured soils have neither the resistance of coarse textured soils, nor the molecular surface-bonding (cohesive) property of clays. As a consequence, soils with medium textures such as silt loam, loamy very fine sand, and very fine sand are highly susceptible to erosion by running water.

4.1.1 Erodibility Code

A code is assigned to each different soil texture. The coding procedure was guided by judgment and knowledge of the project areas and based on modification of erodibility values of soil textures indicated in the Terrain Sensitivity Classification Methodology

(Crockett and Shelford, 1982). Groupings of textural classes according to the soil erodibility codes were approximated by comparison with K values (soil erodibility factor) obtained experimentally for each textural class in Alberta (Tajek and Pettapiece, 1984) and in Ontario (Shelton et al, 1984).

The four erodibility codes assigned for each textural class for both vegetated and unvegetated conditions are given in Table 1.

Table 1: Soil Erodibility Codes for Common Surface Textures

Textural Class	Code for Unvegetated Condition	Code for Vegetated Condition
S (sand), LS (loamy sand) fS (fine sand, LfS (loamy fine sand), cSL (coarse sandy loam)	1.0	0.5
SL (sandy loam) fSL (fine sandy loam), SCL (sandy clay loam), C (clay), SiC (silty clay)	2	1
L (loam), CL (clay loam), SiCL (silty clay loam), vfSL (very fine sandy loam)	3	1.5
Sil (silt loam), LvfS (loamy very fine sand), vfS (very fine sand)	4	2

4.2 Slope

Slope steepness, together with slope length and soil properties, determines the rate and volume of runoff and thus the potential for water erosion. Variations in slope can cause considerable differences

in erosion potential even though other erosion factors are constant. Water velocity increases with the increased slope. Doubling the velocity of flowing water increases its erosive or cutting capacity four times and increases the size of particles it can roll or push along 64 times (Toogood and Newton, 1950).

The project areas occur on a variety of landforms varying from essentially flat fluvial terraces to bedrock-controlled uplands with slopes exceeding 45 percent. For the study area, the steepness of slope is classified into six categories. Each natural slope according to its category is evaluated and an erodibility code is assigned for both vegetated and unvegetated conditions (Table 2). A slope of 10 percent marks the approximate boundary between predominantly erosional and predominantly depositional areas. Areas with slope less than 6 percent have negative code values which have a positive effect on the rating of the site.

Table 2: Soil Erodibility Codes for Different Slopes

Slope Class	Slope Percent	Code For Unvegetated Condition	Code For Vegetated Condition
1, 2, 3	0 - 5	-1	-0.5
4	6 - 9	0	0
5	10 - 15	1	0.5
6	16 - 30	2	1
7	31 - 45	3	1.5
8, 9, 10	>45	4	2

4.3 Overburden Instability

In the project areas, some of the deposits overlying bedrock may be subject to instability due to high slope angles. The majority of these steep areas are dissected by frequent small channels, and are indicated on the physical land classification map by the symbol D. These features provide a direct visual assessment of land surface quality and are included in the erosion potential rating of the unit by assigning a code (Table 3).

Table 3: Soil Erodibility Code for Dissected Areas

Code For Unvegetated Condition	Code For Vegetation Condition
1	0.5

4.4 Drainage

Poor drainage, in general, is an adverse characteristic in evaluating the sensitivity of a soil. When soil moisture level is critically high, it reduces the infiltration rate, and, consequently, produces higher runoff. It may also lower the cohesion between soil particles, causing breakdown of aggregates. In upland areas (erosional terrain) where slope gradients are high, poor drainage produces an increase in site sensitivity and a higher erosion potential rating. In lowlands (depositional terrain), however, slope gradients are low and the transport capability of the water is almost nil. In addition, high moisture content increases the level of aggregation of soil particles

and therefore the sheer resistance and the stability of soil.

In the project areas, the poorly drained soils are found in low-lying topographic positions. Erosion potential rating of these soils is reduced by 1 value for unvegetated condition and by 0.5 value for vegetated condition.

4.5 Erosion-Related Factors Codes

The four erosion-related factors, soil texture, slope, dissection, and drainage, are listed by letters in Table 4. Where a factor is a major or minor contributor to the erosion potential rating, this is indicated in the final rating by the use of upper or lower case lettering respectively.

Table 4: Erosion-Related Factors and Their Codings

Major Factor Coding	Minor Factor Coding	Erosion-Related Factor
S	s	Slope angle
U	u	Surface texture
V	v	Dissection-unstable overlay
Z		Organic soils (arbitrary 1 value)

4.6 Erosion Potential Rating Classes

The combined effect of erosion-related factors (soil texture, slope, dissection, drainage) is qualified by the addition of their respective codes, and a series of erosion potential rating classes from one to seven are created. These rating classes employ the following terminology:

1. Not sensitive
2. Slightly sensitive
3. Mildly sensitive
4. Moderately sensitive
5. Strongly sensitive
6. Highly sensitive
7. Extremely sensitive

LIST OF REFERNECES

Crockett, K. J. and R. C. Shelford. 1982. Terrain Sensitivity Classification Methodology. Alberta Energy and Natural Resources. Edmonton. ENR No. T/17.

Kocaoglu, S. S. 1983. Physical Land Classification of the Rocky North Saskatchewan Area. Alberta Energy and Natural Resources. Edmonton. ENR No. T/12 No. 3.

Shelton, I. J., Wall, G. J. and Dickinson, W. T. 1984. A Proposed Methodology for Mapping Provincial Soil Loss Potential. Publication No. 84-4. Ontario Institute of Pedology. Toronto.

Tajek, J. and W. W. Pettapiece. 1984. Use of the Universal Soil Loss Equation in Alberta. Land Resource Research Institute, Agriculture Canada, Edmonton.

Toogood, J. A. and J. D. Newton, 1950. Water Erosion in Alberta. University of Alberta College of Agriculture Bull. 56.

D1

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	20 cm of loess over till
Landform	:	Morainal veneer over bedrock
Surface Expression; Slope		Inclined; 18
Drainage	:	Well

Soil Profile Description

L-F	8- 0 cm; dark reddish brown (2.5YR 3/4) decomposed wood remains; twigs and leaves; fibered; abrupt, smooth boundary
Ae	0-7 cm; grayish brown (10YR 5/2) very fine sandy loam; very weak, medium, platy; friable, slightly sticky, slightly plastic, soft; abrupt, wavy boundary (7 to 9 cm thick)
Bm	7-18 cm; yellowish brown to dark yellowish brown (10YR 4.5/4) silt loam; weak, fine to medium, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
C	18-20 cm; yellowish brown to light yellowish brown (10YR 5.5/4) silt loam; amorphous; friable, slightly sticky, slightly plastic, soft; few stones; clear, smooth boundary
IIC	20-48+ cm; yellowish brown to dark yellowish brown (10YR 4.5/4) clay loam; amorphous; firm, sticky, plastic, hard; 20% stones

D2

Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	22 cm of loess over till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Undulating; 3%
Drainage	:	Well

Soil Profile Description

L-H	8-0 cm; partly decomposed organic matter
Ae1	0-4 cm; very fine sandy loam
Bm	4-18 cm; silt loam
Ae2	18-12 cm; silt loam
IIBt	22-54 cm; clay loam; few stones
IIC	54-70+ cm; clay loam; few stones

D3

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Till
Landform	:	Morainal veneer over saprolite
Surface Expression; Slope	:	Inclined; 17%
Drainage	:	Well

Soil Profile Description

L-H	6-0 cm; partly decomposed organic matter
Ae	0-4 cm; grayish brown to light grayish brown (10YR 5.5/2) very fine sandy loam to silt loam; very weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
Bm	4-18 cm; brown to dark brown (10YR 4.5/3) loam; weak, fine, sub-angular blocky; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
C	18-28 cm; yellowish brown (10YR 5/4) fine, sandy loam; amorphous; friable, slightly sticky, slightly plastic, soft; few small stones; clear, smooth broundary
IIC	28-100 cm; yellowish brown (10YR 5/6) loamy sand; amorphous; loose, nonsticky, nonplastic, loose; consists of alternating weathered sandstone and shale layers with thickness of 10 to 15 cm each. The texture of weathered shale is silty clay loam to silty clay.

D4

Soil Classification	:	Mesic Humusol
Parent Geologic Material	:	Organic
Landform	:	Slope fen
Surface Expression; Slope	:	Inclined; 5%
Drainage	:	Very poor, water table at 40 cm

Soil Profile Description

Of	0-20 cm; natural-yellowish red (5YR 4/6), pressed-light reddish brown (5YR 6/4) fibric; rubbed fiber content 90%; Von Post 1.
Om1	20-55 cm; natural-black (2.5YR 2.5/0), pressed-very dusky red (2.5YR 2.5/2) mesic; rubbed fiber content 30%; Von Post 3.
Oh1	55-120 cm; natural-black (5YR 2.5/1), pressed-dark reddish brown (5YR 2.5/2) rubbed fiber content 10%; Von Post 6.
Om2	120-130 cm; mesic
Oh2	130-170 cm; humic; includes thin (3 to 5 cm thick) layers of marl

D5

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Inclined; 8
Drainage	:	Well

Soil Profile Description

L-F	8-0 cm; partly decomposed mosses, leaves
Ae	0-5 cm; light gray to light brownish gray (10YR 6.5/2) fine sandy loam; very weak, medium, platy; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (4 to 10 cm thick)
Bm	5-19 cm; brown to dark brown (7.5YR 4/4) silt loam; very weak, fine, platy; friable, slightly sticky, slightly platic, soft; few, small stones; clear, smooth boundary
C	19-34 cm; yellowish brown (10YR 5/4) silt loam to silty clay loam; amorphous; friable, sticky, plastic, slightly hard; gradual, smooth boundary
IIC	34-90 cm; dark grayish brown (10YR 4/2) silty clay; amorphous; firm, sticky, plastic, hard, 20% small stones

D6

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Till
Landform	:	Morainal veneer over bedrock
Surface Expression; Slope	:	Inclined; 30%
Drainage	:	Well, seepage area

Soil Profile Description

L-F	11-0 cm; partly decomposed organic matter
Ae	0-3 cm; dark gray to dark grayish brown (10YR 4/1.5) silt loam; very weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
Btj	3-15 cm; yellowish brown (10YR 5/4) silt loam; weak, fine, sub-angular blocky; friable, sticky, slightly plastic, soft; gradual, smooth boundary
C	15-90 cm; yellowish brown (10YR 5/4) silty clay loam; amorphous; firm, sticky, plastic, slightly hard; clear, smooth boundary
IIC	90-110+ cm; grayish brown (10YR 5/2) silty clay; amorphous; firm, sticky, plastic, hard; weathered shale acts as an impermeable layer causing seepage

D7

Soil Classification	:	Rego Humic Gleysol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Undulating, inclined; 6%
Drainage	:	Poor, seepage area

Soil Profile Description

L-H	15-0 cm; partly decomposed organic matter
Ah1	0-10 cm; black (10YR 2/1) silt loam; amorphous; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary
Ah2	10-25 cm; very dark gray (10YR 3/1) silt loam; weak, very fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
Cg	25-38 cm; grayish brown (2.5Y 5/2) clay loam; many, fine, reddish brown and grayish mottles; amorphous; firm, sticky, plastic, hard

D8

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Till
Landform	:	Morainal veneer over bedrock
Surface Expression	:	Inclined; soil creeping; 40%
Drainage	:	Well, seepage area

Soil Profile Description

L-H	6-0 cm; partly decomposed organic matter
Aej	0-2 cm; brown to dark brown (7.5YR 4.5/2) silt loam; weak, fine, granular; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary
Bm	2-32 cm; brown to dark brown (7.5YR 4/4) silty clay loam; weak, fine, subangular blocky; friable, sticky, plastic, slightly hard; angular, small to medium, sandstone fragments; gradual, smooth boundary
C	32-80 cm; brown (10YR 5/4) clay loam; amorphous; firm, sticky, plastic, hard; few, small stones

D9

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 1%

Drainage : Well

Soil Profile Description

L-H 12-0 cm; partly decomposed organic matter

Ae 0-2 cm; brown (10YR 5/2) very fine sandy loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Br 3-9 cm; brown to dark brown (10YR 4/4) silt loam to silty clay loam; very weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; clear, wavy boundary (6 to 11 cm thick)

C1 9-22 cm; brown (10YR 5/4) silt loam to silty clay loam; amorphous; friable, slightly sticky, slightly plastic, slightly hard; gradual, smooth boundary

C2 22-70 cm; brown to light brown (10YR 5.5/4) silty clay loam; amorphous; friable, sticky, plastic, slightly hard; 10% stones

D10

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating; 3%

Drainage : Well

Soil Profile Description

L-F 11-0 cm; partly decomposed leaves, grasses and mosses

Ae 0-4 cm; dark grayish brown (10YR 4/2) silt loam; very weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (2 to 6 cm thick)

Bm 4-11 cm; strong brown (7.5YR 5/6) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, diffuse boundary; few, small stones

C1 11-30 cm; yellowish brown (10YR 5/4) silt loam to silty clay loam; amorphous; friable, slightly sticky, slightly plastic, slightly hard; 20 to 30% small stones; clear, smooth boundary

C2 30-42+ cm; yellowish brown (10YR 5/6) clay loam to silty clay loam; amorphous; firm, sticky, plastic, hard; 30 to 40%, small to medium stones

D11

Soil Classification	:	
Parent Geologic Material	:	36 cm of loess over till
Landform	:	Morainal veneer-blanket over bedrock
Surface Expression; Slope	:	Inclined; 25%
Drainage	:	Well

Soil Profile Description

L-H	6-0 cm; partly decomposed organic matter
Ae	Trace
Bm	0-10 cm; silt loam
C	10-36 cm; silt loam
IIC	36-60+ cm; silty clay loam to silty clay (till); 15 to 20% stones

D12

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Glaciofluvial
Landform	:	Glaciofluvial veneer over bedrock
Surface Expression; Slope	:	Inclined; 26%
Drainage	:	Well to rapidly

Soil Profile Description

L-H	6-0 cm; partly decomposed organic matter
Ae	0-8 cm; sandy loam
Bm	8-30 cm; gravelly sandy loam; 40 to 50% small to medium stones

D13

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material		Till
Landform		Morainal blanket over bedrock
Surface Expression; Slope		Inclined; 17
Drainage		Well

Soil Profile Description

L-F 13-0 cm

Ae 0-4 cm; dark gray to dark grayish brown (10YR 4/1.5) very fine sandy loam; very weak, medium, platy; friable, slightly sticky, slightly plastic; soft; clear, smooth boundary

Bm 4-13 cm; brown to dark brown (7.5YR 4/4) silt loam; very weak, fine, platy breaking into very fine granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

C1 13-21 cm; pale brown (10YR 6/3) silt loam; amorphous; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary

C2 21-43+ cm; yellowish brown (10YR 5/4) sandy loam to sandy clay loam; amorphous; firm, sticky, plastic, slightly hard; 30% small to medium stones

D14

Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression, Slope	:	Inclined; 7%
Drainage	:	Moderately well

Soil Profile Description

L-F 8-0 cm; partly decomposed leaves, grasses, mosses

Ae 0-6 cm; grayish brown (10YR 5/2) silt loam; moderate, medium, platy; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (4 to 8 cm thick)

Bt 6-23 cm; yellowish brown (10YR 5/4) silty clay loam; moderate, medium, subangular blocky; firm, sticky, plastic, hard; many, thin, on ped faces, clay skins; few, small stones; clear, smooth boundary

C 23-53+ cm; very dark grayish brown (10YR 3/2) clay to silty clay; amorphous; very firm, sticky, plastic, very hard

D15

Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Undulating, hummocky; 20%
Drainage	:	Well-moderately well

Soil Profile Description

L-F	10-0 cm; partly decomposed leaves, grasses, mosses
Ae	Trace; pale brown (10YR 6/3)
Bm	0-9 cm; yellowish brown (10YR 5/4) silty clay; weak, very fine, subangular blocky; firm, sticky, plastic, hard; clear, smooth boundary
Bt	9-19 cm; yellowish brown to light yellowish brown (10YR 5.5/4) clay; weak, fine, subangular blocky; firm, sticky, plastic, very hard; clear, smooth boundary
C	19-55+ cm; grayish brown (10YR 5/2) silty clay; amorphous; firm, sticky, plastic, very hard

D16

Soil Classification	:	Terric Fibric Mesisol
Parent Geologic Material	:	Organic
Landform	:	Horizontal fen - organic veneer over moraine
Surface Expression; Slope	:	Level; 0%
Drainage	:	Very poor

Soil Profile Description

Of	0-25 cm; fibric
Oh	25-90 cm; humic
IICg	90+ cm; till

D17

Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Till
Landform		Morainal veneer-blanket over bedrock
Surface Expression; Slope		Undulating; [illegible]
Drainage		Well to moderately well

Soil Profile Description

L-H 11-0 cm; partly decomposed organic matter

Ae 0-4 cm; dark gray (10YR 4/1) very fine sandy loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (3 to 8 cm thick)

Bm 4-7 cm; brown to dark brown (7.5YR 4/4) silt loam; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (3 to 7 cm thick)

Bt 7-23 cm; yellowish brown (10YR 5/4) silty clay; moderate, fine, subangular blocky; firm, sticky, plastic, hard; many, thin, on ped faces, clay skins; clear, smooth boundary

C 23-52+ cm; brown to dark brown (10YR 4/3) clay; moderate, very fine, pseudoblocky; firm, sticky, plastic, hard

D18

Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Undulating; 6%
Drainage	:	Moderately well

Soil Profile Description

L-F 6-0 cm; partly decomposed organic matter

Ae 0-5 cm; grayish brown (10YR 5/2) silt loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Btj 5-11 cm; yellowish brown (10YR 5/4) clay loam to silty clay loam; weak, fine, subangular blocky; firm, sticky, plastic, slightly hard; common, very thin, on ped faces, clay skins; clear, smooth boundary

Bt 11-23 cm; brown to dark grayish brown (10YR 4/2.5) silty clay loam to silty clay; moderate, medium, subangular blocky; firm, sticky, plastic, hard; many, thin, on ped faces and in voids, clay skins; clear smooth boundary

C 23-51+ cm; very dark grayish brown (10YR 3/2) silty clay; weak, fine, pseudsblocky; firm, sticky, plastic, hard; few, small stones

D19

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 60 cm of loess over till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 15%

Drainage : Well

Soil Profile Description

L-F 4-0 cm

Ae 0-5 cm; dark gray to dark grayish brown (10YR 4/1.5) very fine sandy loam; very weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 5-17 cm; brown to dark brown (7.5YR 4/4) silt loam; weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

BC 17-26 cm; strong brown (7.5YR 5/6) sandy loam; amorphous; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

C 26-60 cm; yellowish brown (10YR 5/4) silt loam; moderate, fine, pseudoplaty; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary

IIC 60+ cm; brown to pale brown (10YR 5.5/3) sandy loam to sandy clay loam; amorphous; friable, slightly sticky, slightly plastic, slightly hard; 10 to 15% small stones

D20

Soil Classification : Orthic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating, hummocky; 14%

Drainage : Moderately well

Soil Profile Description

L-H 9-0 cm; partly decomposed organic matter

Ae 0-6 cm; grayish brown (10YR 5/2) silt loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (3-7 cm thick)

AB 6-13 cm; yellowish brown (10YR 5/4) silty clay loam; weak, fine, subangular blocky; friable, sticky, plastic, slightly hard; common, very thin, on ped surfaces, clay films; gradual, smooth boundary

Bt 13-24 cm; dark grayish brown (10YR 4/2) silty clay; moderate, fine, subangular blocky; firm, sticky, plastic, hard; many, thin, on ped surfaces and in voids, clay films; clear, smooth boundary

C 24-45+ cm; very dary grayish brown (10YR 3/2) silty clay; weak, fine, pseudoblocky; firm, sticky, plastic, hard

D21

Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Undulating, rolling; 10
Drainage	:	Moderately well; seepage area

Soil Profile Description

L-F 6-0 cm

Ae Trace

AB 0-7 cm; brown to dark brown (10YR 4/3) clay loam; very weak, fine, subangular blocky; friable, slightly sticky, plastic, slightly hard; gradual, smooth boundary

Bt 7-25 cm; yellowish brown (10YR 5/4) clay; moderate, very fine, subangular blocky; firm, sticky, plastic, hard; many, very thin, on ped surfaces, clay skins; few, small stones; clear, smooth boundary

C 25-48+ cm; grayish brown (2.5Y 5/2) clay; amorphous; firm, sticky, plastic, hard; 20 to 30%, small to medium stones

D22

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	30 cm of loess over till
Landform	:	Morainal veneer-blanket over bedrock
Surface Expression; Slope	:	Inclined; 22%
Drainage	:	Well

Soil Profile Description

L-F 9-0 cm; partly decomposed organic matter

Ae 0-7 cm; brown to light brown (7.5YR 5.5/4) very fine sandy loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 7-15 cm; brown to dark brown (7.5YR 4/4) silt loam; weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

C 15-30 cm; light yellowish brown (10YR 6/4) silt loam; moderate, medium, pseudoplaty; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary

IIC1 30-41 cm; brown to dark brown (10YR 4/3) clay loam; amorphous; firm, slightly sticky, slightly plastic, slightly hard; few, small stones; clear, smooth boundary

IIC2 41-60 cm; dark yellowish brown (10YR 4/4) clay loam to clay; amorphous; firm, sticky, plastic, hard; 10 to 15% small, medium stones

D23

Soil Classification	:	Terric Fibric Humisol
Parent Geologic Material	:	Organic
Landform	:	Horizontal fen-organic veneer over moraine
Surface Expression; Slope	:	Level; 0
Drainage	:	Very poor, water table at 20 cm

Soil Profile Description

Of	0-15 cm; fibric
Oh	15-72 cm; humic
IICg	72+ cm; till

D24

Soil Classification	:	**Eluvaited Eutric Brunisol**
Parent Geologic Material	:	**34 cm of loess over till**
Landform	:	**Morainal blanket over bedrock**
Surface Expression; Slope	:	Undulating; 7%
Drainage	:	Well

Soil Profile Description

L-F	12-0 cm; partly decomposed organic matter
Ae	0-4 cm; gray to dark gray (10YR 4.5/1) very fine sandy loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (4 to 10 cm thick)
Bm	4-12 cm; yellowish brown to dark yellowish brown (10YR 4.5/4) silt loam; very weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
C	12-34 cm; yellowish brown (10YR 5/4) silt loam with pockets of fine sandy loam; amorphous; friable, slightly sticky, slightly plastic, soft; abrupt, smooth boundary
IIC	34-50+ cm; very dark brown to very dark grayish brown (10YR 2.5/2) clay to silty clay; amorphous; firm, sticky, plastic, hard

D25

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material		Colluvium-till
Landform	:	Morainal blanket over till
Surface Expression; Slope	:	Inclined; 19
Drainage	:	Well

Soil Profile Description

L-F 7-0 cm; partly decomposed organic matter

Ahe 0-5 cm; brown to dark grayish brown (10YR 4/2.5) very fine sandy loam; weak, fine, granular; friable, slightly sticky, slightly plastic, soft; 30-40% medium to large stones; clear, wavy boundary (3 to 11 cm thick)

Bm 5-15 cm; brown to dark brown (10YR 4.5/3) fine sandy loam; very weak, fine, subangular blocky breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; 30-40% medium to large stones; clear, smooth boundary

C 15-28 cm; yellowish brown (10YR 5/4) silty clay loam; amorphous; firm, slightly sticky, slightly plastic, slightly hard; 20% small to medium stones; gradual, smooth boundary

IIC 28-55+ cm; yellowish brown (10YR 5/4) clay loam to clay; amorphous; firm, sticky, plastic, hard; few, small stones

D26

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Inclined, undulating; 7%
Drainage	:	Moderately well

Soil Profile Description

L-F 10-0 cm; partly decomposed leaves, mosses

Ae 0-7 cm; gray to grayish brown (10YR 5/1.5) very fine sandy loam; very weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 7-20 cm; yellowish brown (10YR 5/4) silt loam; weak, fine, platy breaking into weak, very fine, subangular blocky; friable, slightly sticky, slightly plastic, soft; 10% small to medium stones; gradual, smooth boundary

C1 20-32 cm; pale brown (10YR 6/3) silty clay loam; pseudoblocky; friable, slightly sticky, plastic, slightly hard; few, small stones; clear, smooth boundary

C2 32-42+ cm; dark grayish brown (10YR 4/2) silty clay; amorphous; firm, sticky, plastic, hard; few, small stones

D27

Soil Classification	:	Gleyed Brunisolic Gray Luvisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Inclined; 4%
Drainage	:	Imperfect; seepage area

Soil Profile Description

L-H	8-0 cm; partly decomposed organic matter
Ahe	0-5 cm; brown to dark brown (10YR 4.5/3) silt loam; very fine, weak, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
Bmgj	5-12 cm; yellowish brown (10YR 5/4) silty clay loam; few, fine, distinct, strong brown (7.5YR 5/8) mottles; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; few, small stones; clear, smooth boundary
Btgj	12-26 cm; yellowish brown to dark yellowish brown (10YR 4.5/4) silty clay loam to silty caly; common, fine to medium, faint and distinct, dark brown to strong brown (10YR 3/3 to 7.5YR 5/6) mottles; moderate, medium, subangular blocky; firm, slightly sticky, slightly plastic, slightly hard; many, very thin, on ped faces, clay skins; few, small stones; clear, smooth boundary
C	26-53+ cm; very dark gray (10YR 3/1) silty clay to clay; amorphous breaking into very fine, pseudoblocky; firm, sticky, plastic, hard; few, small stones

D28

Soil Classification	:	Terric Fibric Humusol
Parent Geologic Material	:	Organic
Landform	:	Organic veneer over lacustrine
Surface Expression; Slope	:	Level; 0%
Drainage	:	Very poor

Soil Profile Description

Of	0-20 cm; fibric
Om	20-40 cm; mesic
Oh	40-70 cm; humic; includes 2 cm of ash layer
Cg	70+ cm; silty clay

D29

Soil Classification : Brunisolic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression: Slope : Undulating; 5

Drainage : Moderately well; seepage area

Soil Profile Description

L-F 8-0 cm

Ae 0-2 cm; dark grayish brown to very dark grayish brown (10YR 3.5/2) silt loam; weak, fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 2-14 cm; brown to dark brown (7.5YR 4/2) silt loam; very weak, very fine, subangular blocky; friable, sticky, slightly plastic, soft; clear, smooth boundary

Bt 14-28 cm; brown to dark brown (10YR 4/3) silty clay loam; weak, very fine, subangular blocky; friable, sticky, plastic, slightly hard; many, very thin, on ped faces, clay skins; few, small stones; gradual, smooth boundary

C 28-45+ cm; yellowish brown (10YR 5/4) silty clay loam; amorphous; friable, sticky, plastic, slightly hard; few, small stones

D30

Soil Classification : Brunisolic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 17%

Drainage : Well

Soil Profile Description

Similar to #29

D31

Soil Classification : Gleyed Brunisolic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating; 4

Drainage : Imperfect; seepage area

Soil Profile Description

L-F 13-0 cm; partly decomposed organic matter

Ae 0-5 cm; dark grayish brown to very dark grayish brown (10YR 3.5/2) silt loam; weak, medium, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bmgj 5-9 cm; dark yellowish brown (10YR 4/3) silt loam; common, fine, distinct, reddish brown, mottles; weak, fine, platy breaking into fine, granular; friable, slightly sticky, plastic, soft; few, small stones; clear, smooth boundary

Btgj 9-25 cm; yellowish brown to dark yellowish brown (10YR 4.5/4) silty clay loam; common, fine to medium, distinct, reddish brown, mottles; few, small stones; gradual, smooth boundary

C 25-50+ cm; very dark gray (10YR 3/1) clay; amorphous; firm, sticky, plastic, hard; few, small stones

D32

Soil Classification : Brunisolic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 10%

Drainage : Well

Soil Profile Description

L-H 11-0 cm

Ae 0-2 cm; brown to dark brown (10YR 4.5/3) very fine sandy loam; very weak, fine, platy; friable, slightly sticky, plastic, soft; clear, smooth boundary

Bm 2-10 cm; brown (7.5YR 5/4) silt loam; weak, fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Btj 10-18 cm; yellowish brown (10YR 5/4) silty clay loam; weak, fine, subangular blocky; friable, slightly sticky, plastic, slightly hard; common, very thin, on ped faces, clay skins; few, small stones; gradual, smooth boundary

Bt 18-30 cm; brown (10YR 5/3) silty clay to clay; moderate, medium, subangular blocky; firm, slightly sticky, plastic, hard; many, thin, on ped faces, clay skins; few, small stones; gradual, smooth boundary

C 30-48+ cm; yellowish brown (10YR 5/4) silty clay to clay; weak, pseudoblocky; firm, sticky, plastic, hard; 5-10% small stones

D33

Soil Classification	:	Eluviated Dystric Brunisol
Parent Geologic Material	:	Saprolite-colluvium
Landform		Saprolite veneer over bedrock
Surface Expression; Slope		Inclined; 32 ; soil creeping
Drainage		Well; seepage area

Soil Profile Description

L-H [illegible] cm; partly decomposed organic matter

Ae 0-2 cm; dark brown to very dark grayish brown (10YR 3/2.5) fine sandy loam; granular; friable, nonsticky, slightly plastic, soft; clear, smooth boundary

Bm 2-12 cm; yellowish brown (10YR 6/5) loamy sandy; single grain; loose, nonsticky, nonplastic, soft; 30%, small to medium stones; gradual, wavy boundary (9 to 13 cm thick)

C 12-55+ cm; yellowish brown (10YR 5/6) loamy sand; single grain; friable, nonsticky, nonplastic, loose; 30%, small sandstone fragments

D34

Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Inclined; 12%; soil creeping-slope wash
Drainage	:	Moderately well; seepage area

Soil Profile Description

L-F 12-0 cm

Ae Trace

AB 0-13 cm; very dark grayish brown (10YR 3/2) silty clay loam; weak, fine, granular; friable, slightly sticky, plastic, slightly hard; clear, wavy boundary (10 to 16 cm thick)

Bt 13-23 cm; dark grayish brown (10YR 4/2) silty clay loam; weak, fine, subangular blocky; firm, slightly sticky, plastic, hard; many, very thin, on ped faces, clay skins; few, small stones; clear, smooth boundary

C 23-43+ cm; dark grayish brown (10YR 4/2) silty clay to clay; amorphous; firm, sticky, plastic, hard; few, small stones

D35

Soil Classification	:	Eluviated Dystric Brunisol
Parent Geologic Material	:	Saprolite
Landform	:	Saprolite veneer over bedrock
Surface Expression; Slope	:	Inclined, ridged; 37
Drainage	:	Well

Soil Profile Description

Ae	0-2 cm; fine sandy loam
Bm	2-11 cm; fine sandy laom
C	11-30+ cm; loamy sand to sand

D36

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Till
Landform	:	Morainal veneer-blanket over bedrock
Surface Expression; Slope	:	Inclined; 20%; some gullying
Drainage	:	Well

Soil Profile Description

L-F	8-0 cm
Ae	0-7 cm; brown to grayish brown (10YR 5/2.5) very fine sandy loam; weak, fine, platy breaking into granular; friable, slightly sticky, slightly plastic, soft; 5%, small stones; clear, smooth boundary
Bm	7-14 cm; brown to dark brown (7.5YR 4/4) silt loam; modeate, fine, platy breaking into fine, subangular blocky; friable, slightly sticky, slightly plastic, soft, 5%, small stones; clear, wavy boundary (5 to 10 cm thick)
BC	14-27 cm; yellowish brown (10YR 5/4) silty clay loam; very weak, fine, subangular blocky; friable, slightly sticky, plastic, slightly hard; few, small to medium stones; gradual, smooth boundary
C	27-53+ cm; dark grayish brown (10YR 4/2) silty clay; amorphous; firm, sticky, plastic, slightly hard; few, small to medium stones

D37

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	25 cm of loess over till
Landform	:	Morainal veneer-blanket over bedrock
Surface Expression; Slope		Undulating
Drainage		Well

Soil Profile Description

L-H	10-0 cm
Ae	0-4 cm; gray (10YR 5/1) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
Bm	4-11 cm; brown to dark brown (7.5YR 4/4) fine sandy loam; weak, fine, granular; friable, slightly sticky, nonplastic, soft; clear, smooth boundary
BC	11-17 cm; yellowish brown (10YR 5/4) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary
C	17-25 cm; brown to pale brown (10YR 5.5/3) very fine sandy loam; weak, fine, pseudoplaty; friable, slightly sticky, slightly plastic, soft, abrupt, smooth boundary
II C	25-48+ cm; very dark grayish brown (10YR 3/2) clay; amorphous; firm, sticky, plastic, hard; 20%, small to medium stones

D38

Soil Classification	:	Eluviated Dystric Brunisol
Parent Geologic Material	:	Till-saprolite
Landform:	:	Morainal veneer over bedrock
Surface Expression; Slope	:	Inclined, 11%
Drainage	:	Well

Soil Profile Description

L-F	7-0 cm
Ae	0-4 cm; light brownish gray (10YR 6/2) loamy sand to sandy loam; weak, fine, platy breaking into fine, granular; friable, nonsticky, nonplastic, soft; clear, wavy boundary (2 to 5 cm thick)
Bm	4-11 cm; strong brown (7.5YR 5/6) loamy sand to sandy loam; single grain; friable, nonsticky, nonplastic, soft; 10-15% small, few medium stones; clear, smooth boundary
C	11-22 cm; yellowish brown (10YR 5/6) loamy sand to sandy loam; amorphous; friable, nonsticky, nonplastic, soft; 10-15%, small sandstones; clear, smooth boundary
II C	22-54 cm; yellowish brown (10YR 5/6) sand to loamy sand; single grain; friable, nonsticky, nonplastic, soft

D39

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Colluvium

Landform : Colluvium veneer over bedrock

Surface Expression : Inclined; 55

Drainage : Well to rapidly

Soil Profile Description

L-H 6-0 cm

Ae 0-5 cm; gray to grayish brown (10YR 5/1.5) rubbly sandy loam; amorphous; friable, nonsticky, nonplastic, soft; clear, wavy boundary (2 to 5 cm thick)

Bm 5-12 cm; yellowish brown (10YR 5/4) rubble; simple grain; loose, nonsticky, nonplastic, loose; 60%, small to medium, angular stones; gradual, smooth boundary

C 12-25 cm; light yellowish brown (10YR 6/4) rubble; single grain; loose, nonsticky, nonplastic, loose; 60%, small to medium, angular stones

D40

Soil Classification : Orthic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal

Surface Expression; Slope : Undulating; 4%

Drainage : Moderately well

Soil Profile Description

L-H 13-0 cm; partly decomposed organic matter

Ae 0-5 cm; gray to light gray (10YR 6/1) silt loam; moderate, medium, platy; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (2 to 7 cm thick)

Bt 5-14 cm; brown to dark brown (10YR 4/3) silty clay loam; moderate, medium, subangular blocky; firm, slightly sticky, plastic, slightly hard; many, thin, on ped faces, clay skins; few, small stones; clear, smooth boundary

C 14-45+ cm; very dark gray (10YR 3/1) clay; pseudoblocky; firm, sticky, plastic, hard; few, small stones

D41

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 28%

Drainage : Well

Soil Profile Description

L-F 8-0 cm

Ae Trace; dark grayish brown (10YR 4/2) fine sandy loam

Bm 0-9 cm; brown (10YR 4/5/3) loam to clay loam; weak, fine, granular; friable, sticky, plastic, slightly hard; clear, irregular boundary

C 9-56 cm; yellowish brown (10YR 5/4) loam to clay loam; amorphous; friable, sticky, plastic, slightly hard; few, small stones

D42

Soil Classification : Orthic Eutric Brunisol

Parent Geologic Material : Till-saprolite

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 28%; soil creeping

Drainage : Well

Soil Profile Description

L-F 6-0 cm; partly decomposed organic matter

AB 0-15 cm; silty clay loam to silty clay; slope wash material

Bm 15-28 cm; brown (10YR 4.5/3) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; few, small stones; gradual, smooth boundary

C 28-49 cm; yellowish brown (10YR 5/4) clay loam; amorphous; friable, slightly sticky, slightly plastic, slightly hard; 10%, small stones

II C 49-59+ cm; dark brown (10YR 3/3) clay loam to clay; amorphous; firm, sticky, plastic, hard; 30-40%, shale fragments

D43

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer-blanket over bedrock

Surface Expression; Slope : Inclined, undulating; 10%

Drainage : Well

Soil Profile Description

L-F 5-0 cm

Ae 0-6 cm; grayish brown (10YR 5/2) silt loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 1 6-10 cm; brown to dark brown (7.5YR 4/4) sandy loam; weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (3 to 6 cm thick)

Bm 2 10-18 cm; yellowish brown (10YR 5/6) silt loam; very weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, soft; 5-10%, small stones; gradual, smooth boundary

C 18-53 cm; yellowish brown (10YR 5/4) silty clay loam; amorphous; firm, slightly sticky, plastic, hard; 15-20%, small stones

D44

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till-saprolite

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined, undulating; 7%

Drainage : Well

Soil Profile Description

L-F 8-0 cm; partly decomposed organic matter

Ae 0-5 cm; gray to light brownish gray (10YR 6/1.5) silt loam; moderate, fine, platy; friable, nonsticky, slightly plastic, soft; clear, smooth boundary

Bm 5-12 cm; yellowish brown (10YR 5/6) loam; weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

C1 12-24 cm; yellowish brown (10YR 5/4) loam to clay loam; amorphous; friable, slightly sticky, slightly plastic, slightly hard; few, small stones, sandstone fragments; gradual, smooth boundary

C2 24-36 cm; yellowish brown to light yellowish brown (10YR 5.5/4) silty clay loam; amorphous; friable, slightly sticky, slightly plastic, slightly hard; few, small stones, sandstone fragments

II C 36-46+ cm; dark grayish brown to very dark grayish brown (10YR 3.5/2) clay loam to clay; amorphous; firm, slightly sticky, plastic, slightly hard; 30-40%, small, shale fragments

D45

Soil Classification : Humic Mesisol

Parent Geologic Material : Organic

Landform : Horizontal fen

Surface Expression; Slope : Level; 0

Drainage : Very poor; water table at 10 cm

Soil Profile Description

Of 0-20 cm; fibric

Om1 20-30 cm; mesic

Oh 30-65 cm; humic

Om2 65-130+ cm; mesic

D46

Soil Classification : Orthic Regosol

Parent Geologic Material : Till

Landform : Morainal veneer-blanket over bedrock

Surface Expression; Slope : Moderately well; seepage area

Soil Profile Description

L-F 8-0 cm

C 0-50+ cm; dark gray (10YR 4/1) loam to clay loam; amorphous; firm, slightly sticky, slightly plastic, slightly hard; 10%, small stones

D47

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer-blanket over bedrock

Surface Expression; Slope : Inclined; 21%, soil creeping

Drainage : Well; seepage area

Soil Profile Description

L-F 8-0 cm

Ae 0-7 cm; brown to grayish brown (10YR 5/2.5) silt loam; weak, fine, platy; friable, nonsticky, nonplastic, soft; clear, smooth boundary

Bm1 7-17 cm; dark grayish brown (10YR 4/2) sandy loam; weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; 5%, small to medium stones; clear, smooth boundary

Bm2 17-25 cm; very dark grayish brown (10YR 3/2) silty clay loam; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; 5%, small to medium stones; gradual, smooth boundary

C 25-54 cm; brown to dark brown (10YR 4/3) silty clay; amorphous; friable, slightly sticky, plastic, hard; 15-20%, small to medium stones

D48

Soil Classification : Orthic Eutric Brunisol

Parent Geologic Material : Fluvial

Landform : Fluvial veneer-blanket over moraine

Surface Expression; Slope : Undulating; 4%

Drainage : Well

Soil Profile Description

L-H 5-0 cm

Ah 0-2 cm; very dark grayish brown (10YR 3/2) loam; weak, fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 2-11 cm; dark yellowish brown (10YR 3/4) loam; weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (5 to 9 cm thick)

C 11-100 cm; dark brown (10YR 3/3) silt loam; amorphous; friable, slightly sticky, slightly plastic, soft

II C 100+ cm; clay loam till; few, small stones

D49

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bed

Surface Expression; Slope : Inclined; 5[illegible] soil creeping

Drainage : Well

Soil Profile Description

L-F 4-[illegible] cm

Ae 0-3 cm; light brownish gray (10YR 6/2) loamy sand; weak, fine, granular; friable, nonsticky, nonplastic, soft; 10[illegible] small stones; clear, wavy boundary (2 to 6 cm thick)

Bm 3-13 cm; yellowish brown (10YR 5/6) silt loam; weak, fine, subangular blocky breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; 35-30%, small to medium stones; clear, wavy boundary (8 to 16 cm thick)

C 13-51+ cm; dark brown (10YR 3/3) silt loam; amorphous; friable, slightly sticky, slightly plastic, soft; 35%, small to medium stones

D50

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer-blanket over bedrock

Surface Expression; Slope : Inclined, 28%

Drainage : Well

Soil Profile Description

L-F 8-0 cm

Ae 0-3 cm; gray to light gray (10YR 6/1) silt loam; weak, fine platy, friable, nonsticky, slightly plastic, soft; clear, wavy boundary (2 to 6 cm thick)

Bm 3-12 cm; yellowish brown to dark yellowish brown (10YR 4.5/4) silt loam; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Btj 12-24 cm; dark yellowish brown (10YR 4/4) silty clay loam; weak, fine, subangular blocky; friable, slightly sticky, plastic, slightly hard; 10%, small stones; clear, smooth boundary

C 24-62 cm; dark grayish brown (10YR 4/2) clay loam; amorphous; slightly sticky, plastic, slightly hard; 30-40%, small stones

D51

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Undulating, inclined; 8%

Drainage : Well

Soil Profile Description

L-H 7-0 cm

Ae 0-3 cm; dark gray (10YR 4/1) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; few, small stones; clear, smooth boundary

Bm1 3-7 cm; brown to dark brown (7.5YR 4/4) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; few, small stones; clear, smooth boundary

Bm2 7-15 cm; yellowish brown (10YR 5/6) silty clay loam; weak, fine, subangular blocky; friable, slightly sticky, plastic, soft; 10% small and medium stones; clear, smooth boundary

BC 15-26 cm; yellowish brown (10YR 5/8) silt loam; weak, fine, subangular blocky breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; 20%, small and medium stones; gradual, smooth boundary

C 26-53+ cm; yellowish brown (10YR 5/6) silt loam; amorphous; friable, slightly sticky, slightly plastic, soft; 60-70%, small and medium stones

D52

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till-colluvium

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 29%; soil creeping

Drainage : Well

Soil Profile Description

L-F 8-0 cm

Ae 0-4 cm; dark gray to dark grayish brown (10YR 4/1.5) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 4-13 cm; brown to dark brown (10YR 4/3) silt loam; weak, fine, platy, breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; 5%, small, sandstone fragments; clear, smooth boundary

C 13-54 cm; dark grayish brown (10YR 4/2) sandy loam; amorphous; friable, slightly sticky, slightly plastic, soft; 40% small, 10% medium sandstones

D53

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined, undulating; 18

Drainage : Well

Soil Profile Description

L-F 10-0 cm

Ae 0-8 cm; grayish brown (10YR 5/2) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 8-19 cm; yellowish brown (10YR 5/4) sandy loam; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, soft; 15% small to medium stones; gradual smooth boundary

C1 19-25 cm; grayish brown (10YR 5/2) silty clay loam; amorphous; friable, slightly sticky, plastic, slightly hard; 20% small to medium stones, some siltstone fragments; gradual, smooth boundary

C2 25-50+ cm; very dark grayish brown (10YR 3/2) silty clay loam; amorphous; firm, slightly sticky, plastic, slightly hard; 40-50%, small, dominantly siltstone fragments and 10%, medium, sandstone fragments

D54

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer-blanket over bedrock

Surface Expression; Slope : Inclined, 18%

Drainage : Well

Soil Profile Description

L-H 5-0 cm

Ae 0-2 cm; grayish brown (10YR 5/2) silt loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (2 to 5 cm thick)

Bm 2-10 cm; brown to dark brown (7.5YR 4/4) fine sandy loam; weak, fine, granular; friable, slightly sticky, slightly plastic, soft; 10-15% siltstone fragments; clear, wavy boundary (4 to 12 cm thick)

C 10-44 cm; yellowish brown (10YR 5/4) loam to silt loam; amorphous; friable, slightly sticky, slightly plastic, soft; 30-40%, small to medium, siltstone fragments

D55

Soil Classification : Brunisolic Gray Luvisol

Parent Geologic Material : 13 cm of loess over till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Rolling, inclined; 26%

Drainage : Well

Soil Profile Description

L-H 9-0 cm

Ae1 0-4 cm; brown to pale brown (10YR 5.5/3) silt loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 4-10 cm; yellowish brown (10YR 5/4) silt loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Ae2 10-13 cm; pale borwn (10YR 6/3) silt loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, broken boundary

II Bt 13-27 cm; grayish brown to dark grayish brown (10YR 4.5/2) silty clay; moderate, medium, subangular blocky; firm, sticky, plastic, hard; many, thin, on ped faces, clay skins; few, small stones; clear, smooth boundary

II C 27-54+ cm; grayish brown (2.5Y 5/2) silty clay; amorphous; slightly firm, sticky, plastic, hard; few, small stones

D56

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 44 cm of loess over till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 17%

Drainage : Well

Soil Profile Description

L-H 8-0 cm

Ae 0-10 cm; dark grayish brown (10YR 4/2) silt loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 10-17 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

C1 17-31 cm; pale brown to light yellowish brown (10YR 6/3.5) silt loam; pseudoplaty; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary

C2 31-44 cm; yellowish brown (10YR 5/4) silty clay loam; amorphous, breaking into pseudoblocky; friable, sticky, plastic, hard; abrupt, smooth boundary

II C 44-68 cm; dark brown (10YR 3/3) clay loam; amorphous; firm, sticky, plastic, hard; few, small stones

D57

Soil Classification	:	Eluviated Eutric Brunisol
Soil Parent Material	:	26 cm of loess over till
Landform	:	Morainal
Surface Expression; Slope	:	Undulating; 3
Drainage	:	Moderately well

Soil Profile Description

L-H	12-0 cm
Ae	0-2 cm; grayish brown (10YR 5/2) silt loam; amorphous; friable, nonsticky, slightly plastic, soft; clear, smooth boundary
Bm	2-14 cm; yellowish brown (10YR 5/4) silt loam; weak, medium, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
C	14-26 cm; yellowish brown to dark yellowish brown (10YR 4.5/4) sandy loam; amorphous; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary
II C	26-51+ cm; dark yellowish brown (10YR 4/4) clay; amorphous; firm, sticky, plastic, hard; 30%, small stones

D58

Soil Classification	:	Terric Fibric Mesisol
Parent Geologic Material	:	Organic
Landform	:	Horizontal fen-organic veneer over morainal
Surface Expression; Slope	:	Level; 0%
Drainage	:	Very poor

Soil Profile Description

Of	0-20 cm
Om	20-45 cm
Oh	45-55 cm
II Cg	55+ cm; clay

D59

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 14 cm of loess over till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating; 4%

Drainage : Moderately well

Soil Profile Description

L-F 7-0 cm

Ah 0-6 cm; black (10YR 2/1) silt loam; amorphous; friable, nonsticky, nonplastic, soft; abrupt, smooth boundary

Ae trace; discontinuous

Bm 6-14 cm; dark brown (10YR 3/3) silt loam; weak, fine, granular; friable, slightly sticky, slightly plastic, soft; clear, wavy boundary (3 to 10 cm thick)

II C 14-45+ cm; dark grayish brown (2.5Y 4/2) clay; amorphous; friable, sticky, plastic, hard; a few stones

D60

Soil Classification : Brunisolic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating; 8%

Drainage : Moderately well

Soil Profile Description

L-H 8-0 cm

Ae 0-2 cm; grayish brown (10YR 5/2) silty clay loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 2-10 cm; yellowish brown (10YR 5/4) silty clay loam; weak, fine, subangular blocky; slightly firm, slightly sticky, slightly plastic, slightly hard; 5%, small and medium stones; clear, smooth boundary

Bt 10-20 cm; brown to dark brown (10YR 4/3) silty clay; moderate, medium, subangular blocky; firm, sticky, plastic, hard; many, thin, on ped faces, clay skins; 10%, small stones; gradual, smooth boundary

C 10-47+ cm; very dark grayish brown (10YR 3/2) silty clay to clay; amorphous; firm, sticky, plastic, hard; 5-10%, small to medium stones

D61

Soil Classification	:	Humic Mesisol
Parent Geologic Material		Organic
Landform		Horizontal fen
Surface Expression; Slope		Level; 0
Drainage		Very poor; water table at 10 cm

Soil Profile Description

Of	0-25 cm
Om	25-80 cm
Oh	80-130+ cm

D62

Soil Classification	:	Orthic Regosol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Inclined; 5%
Drainage	:	Moderately well

Soil Profile Description

L-H	6-0 cm
AC	0-40 cm; silty clay; amorphous; firm, sticky, plastic, hard
C	40+ cm; silty clay

D63

Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Inclined; 13%
Drainage	:	Moderately well; seepage area

Soil Profile Description

L-H	9-0 cm
Ae	0-7 cm; silty clay loam
Bm	7-17 cm; fine sandy loam
Btgj	17-29 cm; silty clay; common, medium mottles
C	29-50+ cm; clay

D64

Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Till
Landform	:	Morainal veneer-blanket over bedrock
Surface Expression; Slope	:	Inclined; 27%
Drainage	:	Moderately well

Soil Profile Description

L-F	7-0 cm
Ae	0-3 cm; pinkish gray (7.5YR 6/2) silt loam; weak, fine, platy; friable, nonsticky, slightly plastic, soft; clear, smooth boundary
AB	3-9 cm; light brown (7.5YR 6/4) fine sandy loam; weak, fine, platy; friable, slightly sticky, slightly plastic, soft; few, small stones; gradual, smooth boundary
Bt	9-23 cm; yellowish brown (10YR 5/4) clay; weak, fine, subangular blocky; firm, sticky, plastic, hard; many, thin, on ped faces, clay skins; few, small stones; gradual, smooth boundary
C	23-45+ cm; very dark grayish brown (10YR 3/2) clay laom to clay; amorphous; friable, sticky, plastic, hard; 10%, small stones

D65

Soil Classification : Brunisolic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating; 5

Drainage : Moderately well

Soil Profile Description

L-F 10-0 cm

Ae 0-6 cm; dark brown (10YR 3/3) silt loam; moderate, fine, platy; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Br 6-18 cm; yellowish brown (10YR 5/4) silt loam; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, soft; few, small stones; clear, smooth boundary

Bt 18-28 cm; yellowish brown (10YR 5/5) silty clay; moderate, fine, subangular blocky; firm, sligthly sticky, plastic, slightly hard; many, thin, on ped faces, clay skins; 5-10%, small to medium stones; gradual, smooth boundary

C 28-56+ cm; dark brown (10YR 3/3) silty clay to clay; amorphous; firm, sticky, plastic, hard; 10%, small to medium stones

D66

Soil Classification : Orthic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating; 5%

Drainage : Moderately well

Soil Profile Description

L-F 8-0 cm

Ae 0-5 cm; gray to light brownish gray (10YR 6/1.5) silt loam; weak, fine, platy; friable, nonsticky, slightly plastic, soft; clear, smooth boundary

Bt 5-21 cm; yellowish brown (10YR 5/4) silty clay; moderate, medium, subangular blocky; firm, slightly sticky, plastic, hard; many, thin, on ped faces, clay skins; gradual, smooth boundary

BC 21-17 cm; grayish brown (10YR 5/2) silty clay; moderate, fine, subangular blocky; firm, sticky, plastic, hard; common, fine, on ped faces, clay skins; clear, smooth boundary

C 27-46+ cm; very dark grayish brown (10YR 3/2) silty clay; amorphous; firm, sticky, plastic, hard; very few, very small stones

D67

Soil Classification : Terric Fibric Mesisol

Parent Geologic Material : Organic

Landform : Horizontal fen-organic veneer over lacustrine

Surface Expression; Slope : Level; 0%

Drainage : Very poor; water table at 50 cm

Soil Profile Description

Of 0-55 cm

Om 55-95 cm

II Cg 95+ cm; silty clay

D68

Soil Classification : Orthic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating, rolling; 24%

Drainage : Well

Soil Profile Description

L-F 6-0 cm

Ae 0-3 cm; light brownish gray (10YR 6/2) silt loam; weak, fine, platy; friable, nonsticky, slightly plastic, soft; clear, smooth boundary

Bt 3-19 cm; yellowish brown (10YR 5/4) silty clay loam to silty clay; moderate, fine, subangular blocky; firm, slightly sticky, plastic, hard; many, thin, on ped faces, clay skins; gradual, smooth boundary

BC 19-31 cm; brown to dark brown (10YR 4/3) silty clay; weak, fine, subangular blocky; firm, sticky, plastic, hard; clear, smooth boundary

C 31-64 cm; dark grayish brown (10YR 4/2) silty clay; amorphous; firm, sticky, plastic, hard

D69

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 33

Drainage : Well

Soil Profile Description

L-H 8-0 cm

Ae 0-7 cm; light gray (10YR 7/2) loamy fine sand; single grain; loose, nonsticky, nonplastic, loose; clear, smooth boundary

Bm 7-16 cm; brown to dark brown (10YR 4/3) clay loam; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; 30%, small stones; gradual, smooth boundary

C 16-34 cm; dark yellowish brown (10YR 4/4) clay loam; amorphous; firm, sticky, plastic, hard; 40-60%, small to medium stones

D70

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 31%

Drainage : Well

Soil Profile Description

L-H 10-0 cm

Ae 0-4 cm; light brown (10YR 7/2) silt loam; weak, fine, platy breaking into fine, granular; friable, nonsticky, slightly plastic, soft; 10%, small stones; clear, wavy boundary (2 to 7 cm thick)

Bm1 4-16 cm; yellowish brown (10YR 5/6) sandy loam to sandy clay loam; weak, fine, subangular blocky; friable, slightly sticky, plastic, soft; 10%, small to medium stones; clear, smooth boundary

Bm2 16-29 cm; yellowish brown (10YR 5/5) silty clay; weak, fine, subangular blocky; friable, slightly sticky, plastic, soft; 10%, small to medium stones; clear, smooth boundary

C1 29-43 cm; dark yellowish brown (10YR 4/4) silty clay; amorphous; firm, sticky, plastic, slightly hard; 15%, small to medium stones; clear, smooth boundary

C2 43-78+ cm; dark yellowish brown (10YR 3/4) clay loam; pockets of sand; firm, sticky, plastic, hard; 15%, small to medium stones

D71

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Glaciofluvial

Landform : Glaciofluvial veneer over morainal

Surface Expression; Slope : Rolling, undulating; 10%

Drainage : Well; seepage area

Soil Profile Description

L-F 7-0 cm

Ae 0-4 cm; light brownish gray (10YR 6/2) loamy fine sand; moderate, fine, platy; friable, nonsticky, nonplastic, soft; clear, wavy boundary (2 to 6 cm thick)

Bm1 4-11 cm; yellowish brown (10YR 5/6) silt loam; weak, fine, platy breaking into fine, subangular blocky; friable, nonsticky, nonplastic, soft; clear, wavy boundary (3 to 8 cm thick)

Bm2 11-25 cm; yellowish brown (10YR 5/4) loamy sandy; single grain; friable, nonsticky, nonplastic, loose; clear, smooth boundary

C 25-90 cm; very dark grayish brown (10YR 3/2) loamy sandy; single grain; friable, nonsticky, nonplastic, loose, 5%, small stones; clear, smooth boundary

II C 90+ cm; clay loam

D72

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 19 cm of loess over till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 13%

Drainage : Well-moderately well

Soil Profile Description

L-F 5-0 cm

Ahe 0-7 cm; dark yellowish brown (10YR 4/3) loam; weak, fine, platy; friable, nonsticky, nonplastic, soft; clear, smooth boundary (4 to 7 cm thick)

Ae 7-14 cm; light gray (10YR 7/2) silt loam; moderate, medium, platy; friable, nonsticky, nonplastic, slightly hard; clear, wavy boundary (3 to 7 cm thick)

Bm 14-19 cm; light yellowish brown (10YR 6/4) silty clay loam; weak, fine, subangular blocky; firm, slightly sticky, slightly plastic, slightly hard; clear, smooth boundary

II C1 19-27 cm; yellowish brown (10YR 5/4) clay loam; pseudoblocky; friable, slightly sticky, plastic, slightly hard; 15%, small stones; clear, wavy boundary

II C2 27-60+ cm; dark yellowish brown (10YR 4/4) clay loam; amorphous; firm, sticky, plastic, hard; 20%, small to medium stones

D73

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 11 cm of fluvial over till

Landform : Morainal veneer-blanket over bedrock

Surface Expression; Slope : Inclined; 25 ; some slopewash

Drainage : Well

Soil Profile Description

L-H 7-0 cm

Ae 0-6 cm; yellowish brown (10YR 5/4) silt loam; weak, fine, platy; friable, nonsticky, nonplastic, soft; few gravels; clear, wavy boundary (5 to 10 cm thick)

Bm 6-11 cm; dark yellowish brown (10YR 3.5/4) silt loam; weak, fine, platy breaking into fine, granular; friable, nonsticky, nonplastic, soft; few gravels; clear, smooth boundary

II Ae 11-16 cm; very pale brown (10YR 7/3) silt loam; moderate, medium, platy; friable, nonsticky, nonplastic, soft; clear, smooth boundary

II Bm 16-27 cm; yellowish brown (10YR 5/4) silt loam; moderate, fine, subangular blocky; friable, slightly sticky, slightly plastic, soft; 5%, gravels; gradual, smooth boundry

II C1 27-39 cm; yellowish brown to dark yellowish brown (10YR 4.5/4) silty clay loam; amorphous; firm, sticky, plastic, slightly hard; 25%, gravels; gradual, smooth boundary

II C2 39-70+ cm; dark brown (10YR 3/3) silty clay loam; amorphous; firm, sticky, plastic, hard; 30-35%, gravels

D74

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Glaciofluvial

Landform : Glaciofluvial veneer over morainal

Surface Expression; Slope : Inclined, undulating; 10%

Drainage : Well

Soil Profile Description

L-H 7-0 cm

Ae 0-7 cm; gray (10YR 5/1) sandy clay loam; weak, fine, platy; friable, slightly sticky, nonplastic, soft; abrupt, wavy boundary (5 to 7 cm thick)

AB 7-14 cm; light yellowish brown (2.5Y 6/4) silty clay; weak, fine, subangular blocky; friable, slightly sticky, plastic, soft; few, small stones; clear, smooth boundary

Bm 14-39 cm; light olive brown (2.5Y 5/6) sandy clay loam; moderate, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; clear, wavy boundary

C 39-68 cm; dark yellowish brown (10YR 4/4) sandy clay loam; amorphous; firm, slightly sticky, slightly plastic, slightly hard

D75

Soil Classification : Orthic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating, inclined; 10%

Drainage : Moderately well

Soil Profile Description

L-F 6-0 cm

Ae 0-5 cm; light gray (10YR 7/1) silt loam; moderate, medium, platy; friable, nonsticky, nonplastic, soft; clear, smooth boundary

Btj 5-12 cm; yellowish brown (10YR 5/4) silty clay loam; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; few, thin, on ped faces, clay skins; few, gravels; clear, smooth boundary

Bt 12-26 cm; yellowish brown to dark yellowish brown (10YR 4.5/4) clay loam; moderate, medium, subangular blocky; firm, slightly sticky, plastic, hard; many, thin, on ped faces, clay skins; 5% gravels; clear, smooth boundary

C 26-62 cm; dark brown (10YR 3/3) clay loam; amorphous; firm, sticky, plastic, hard; 5%, gravels.

D76

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer-blanket over bedrock

Surface Expression; Slope : Inclined; 5%

Drainage : Well; seepage area

Soil Profile Description

L-H 5-0 cm

Ae 0-7 cm; light gray (10YR 7/1) gravelly sandy loam; weak, fine, platy; friable, non-sticky, non-plastic, soft; clear, smooth boundary

AB 7-11 cm; yellowish brown (10YR 5/4) gravelly sandy loam; weak, fine, platy breaking into granular; friable, non-sticky, non-plastic, loose; abrupt, smooth boundary

Bm 11-21 cm; yellowish brown (10YR 5/8) gravelly loamy sand; single grain; friable, non-sticky, non-plastic, loose; gradual, smooth boundary

C 21-46+ cm; yellowish brown (10YR 5/6) gravelly loamy sand; single grain; friable, non-sticky, non-plastic, loose

D77

Soil Classification : Humic Mesisol

Parent Geologic Material : Organic

Landform : Horizontal fen

Surface Expression; Slope : Level; 1

Drainage : Very poor

Soil Profile Description

Of [illegible]-15 cm

Om 15-120 cm

Oh 120-140+ cm

D78

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 15%

Drainage : Well

Soil Profile Description

L-H

Ae Gravelly sandy loam

Bm Gravelly sandy loam

D79

Soil Classification : Brunisolic Gray Luvisol

Parent Geologic Material : Till

Landform : Morainal-morainal blanket over bedrock

Surface Expression; Slope : Undulating; 6%

Drainage : Moderately well

Soil Profile Description

L-H 9-0

Ae 0-4 cm; light brownish gray (10YR 6/2) silt loam; moderate, fine, platy; friable, non-sticky, non-plastic, soft; clear, smooth boundary

Bm 4-10 cm; dark yellowish brown (10YR 4/4) silt loam; weak, fine, platy breaking into fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bt 10-22 cm; yellowish brown (10YR 5/4) clay loam; moderate, medium, subangular blocky; firm, sticky, plastic, slightly hard; many, on ped faces and in many voids; clay skins; a few, gravels; clear, smooth boundary

C 22-65+ cm; very dark grayish brown (10YR 3/2) clay loam; pseudoblocky; firm, sticky, plastic, hard; 5% gravels and cherts

D80

Soil Classification : Eluviated

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 34%

Drainage : Well

Soil Profile Development

L-F 4-0 cm

Ahe 0-4 cm; dark brown (10 YR 3/3) gravelly loam; weak, fine, granular; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Ae 4-11 cm; very pale brown (10YR 7/3) gravelly silty clay loam; weak, fine, platy breaking into fine, granular; friable, sticky, plastic, slightly hard; clear, wavy boundary (10 to 30 cm thick)

Btj 11-25 cm; light yellowish brown (10YR 6/4) gravelly silty clay loam; moderate, fine, subangular blocky; firm, sticky, plastic, slightly hard; clear, smooth boundary

C 25-55+ cm; yellowish brown (10YR 5/6) gravelly clay loam; pseudoblocky; friable, sticky, plastic, slightly hard

D81

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 4%

Drainage : Well; seepage area

Soil Profile Description

L-F 4-0 cm

Ahe 0-3 cm; dark brown (10YR 3/3) loam; weak, fine, granular; friable, slightly sticky, non-plastic, soft; clear, smooth boundary

Btj 4-14 cm; light yellowish brown (10YR 6/4) silty clay; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; few, on ped faces, clay skins; 10% gravels; clear, smooth boundary

Bm 14-29 cm; dark yellowish brown (10YR 4/4) sandy clay loam; moderate, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; 15% gravels and 10% coarse cherts; clear, smooth boundary

C 29-90 cm; yellowish brown (10YR 5/4) gravelly sandy loam; amorphous; friable, slightly sticky, non-plastic, slightly hard; 15% coarse cherts

D82

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 32%

Drainage : Well; seepage area

Soil Profile Description

L-F 4-0 cm

Ahe 0-3 cm; light brownish gray (10YR 6/2) loam; weak, fine, platy breaking into granular; friable, non-sticky, non-plastic, soft; abrupt, smooth boundary

Ae 3-13 cm; very pale brown (10YR 8/3) silt loam; weak, fine, platy breaking into granular; friable, non-sticky, non-plastic, slightly hard; 10%, cobbles; clear, smooth boundary

AB 13-21 cm; pale yellow (2.5Y 8/4) silt loam; moderate, fine, subangular blocky; friable, non-sticky, non-plastic, slightly hard; 10% gravels; clear, smooth boundary

Btj 21-36 cm; yellowish brown (10YR 5/6) silty clay loam; moderate, medium, subangular blocky; friable, sticky, plastic, slightly hard; 20%, gravels; clear, smooth boundary

C 36-49+ cm; dark yellowish brown (10YR 4/4) silty clay; pseudo-blocky; firm, slightly sticky, plastic, hard; 10% gravels

D83

Soil Classification	:	Terric Fibric Mesisol
Parent Geologic Material	:	Organic
Landform	:	Horizontal fen-organic veneer over glacio-lacustrine
Surface Expression; Slope	:	Level; 0%
Drainage	:	Very poor; water table at 40 cm

Soil Profile Description

Of	0-30 cm
Oh	30-100 cm
II Cg	100+ cm

D84

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Till
Landform	:	Morainal blanket over bedrock
Surface Expression; Slope	:	Undulating; 5-10%
Drainage	:	Moderately well

Soil Profile Description

L-F	8-0 cm
Ae	0-6 cm; light brownish gray (10YR 6/2) silt loam; moderate, medium, platy; friable, non-sticky, slightly plastic, soft; clear, wavy boundary (5 to 8 cm thick)
Bm	6-11 cm; yellowish brown (10YR 5/8) silt loam; weak, fine, platy breaking into granular; friable, non-stocky, non-plastic, soft; few, gravels; clear, irregular boundary (2 to 8 cm thick)
BC	11-21 cm; pale brown (10YR 6/3) silty clay loam; weak, fine, subangular blocky; friable, slightly sticky, slightly plastic, slightly hard; 5%, gravels; clear, smooth boundary
C	21-41 cm; yellowish brown (10YR 5/6) gravelly sandy loam; amorphous; friable, non-sticky, non-plastic, loose; 30%, cobbles

D85

Soil Classification : Typic Mesisol

Parent Geologic Material Organic

Landform Horizontal fen

Surface Expression; Slope Level; 0

Drainage : Very poor; water table at 10 cm

Soil Profile Description

Of 0-30 cm

Om 30-130+ cm

E1

Soil Classification : Orthic Regosol

Parent Geologic Material : Colluvium-fluvial fan

Landform : Colluvial veneer over bedrock

Surface Expression; Slope : Inclined; 7%

Drainage : Well

Soil Profile Description

L-H 6-0 cm; partially decomposed grasses and mosses

AC1 0-28 cm; dark brown (10YR 3/3) rubbly loam; friable, non-sticky, non-plastic, soft; 40-60%, shale fragments, 10-20%, gravels; clear, smooth boundary

AC2 28-56+ cm; dark grayish brown (10YR 4/2) silt loam; friable, sticky, plastic, soft; 10-20%, weathered shale fragments

E2

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 28 cm of loess over saprolite

Landform : Saprolite veneer over bedrock

Surface Expression; Slope : Inclined; 49°

Drainage : Well

Soil Profile Description

L-F 6-0 cm

Ae 0-7 cm; pink (7.5YR 7.4) silt loam; friable, non-sticky, non-plastic, soft; gradual, smooth boundary

Bm 7-20 cm; brown (7.5 YR 5/4) silt loam; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary

C 20-28 cm; silt loam

IIC 28-52+ cm; brown to dark brown (10YR 4/3) clay loam; 30-40%, weathered shale fragments

E3

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 28 cm of till over saprolite

Landform : Saprolite veneer over bedrock

Surface Expression; Slope : Inclined, 23%

Drainage : Well

Soil Profile Description

L-F 10-0 cm

Ae 0-8 cm; light gray (10YR 7/2) silt loam; friable, non-sticky, non-plastic, soft; clear, smooth boundary

Bm 8-17 cm; dark yellowish brown (10YR 4/4) clay loam; friable, sticky, plastic, slightly hard

C 17-28 cm; yellowish brown (10YR 5/4) clay loam; friable, sticky, plastic, slightly hard; 20-25%, cherts

IIC 28-45+ cm; weathered sandstone

E4

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 21 cm of till over saprolite

Landform : Saprolite veneer over bedrock

Surface Expression : Inclined; 27

Drainage : Well

Soil Profile Description

L-F 4-0 cm

Ae 0-5 cm; gray (10YR 6/1) clay loam; friable, sticky, plastic, slightly hard; many, shale fragments; clear, smooth boundary

Bm 5-21 cm; brown (10YR 5/3) clay loam; friable, slightly sticky, slightly plastic, slightly hard

IIC 21-45+ cm; clay loam saprolite; 40-60%, shale fragments

E5

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined, undulating; 10%

Drainage : Well

Soil Profile Description

L-F 8-0 cm

Ae 0-6 cm; light brownish gray (10YR 6/2) silt loam; friable, non-sticky, non-plastic, soft; clear, smooth boundary

Bm 6-18 cm; yellowish brown (10YR 5/6) clay loam; friable, slightly sticky, slightly plastic, soft

C 18-40+ cm; yellowish brown (10YR 5/4) clay loam; friable, slightly sticky, slightly plastic, soft; 15-20%, cherts

E6

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 47%

Drainage : Well

Soil Profile Description

L-F 8-0 cm

Ae 0-6 cm; pinkish gray (7.5YR 6/2) silt loam

Bm 6-22 cm; dark yellowish brown (10YR 4/4) clay loam

C 22-44+ cm; yellowish brown (10YR 5/4) sandy clay loam; 20-25% cherts

E7

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : 40 cm of till over saprolite

Landform : Saprolite veneer over bedrock

Surface Expression : Inclined; 40%

Drainage : Well

Soil Profile Description

L-F 8-0 cm

Ae 0-4 cm; silt loam

Bm 4-14 cm; fine sandy loam

C 14-40 cm; fine sandy loam

IIC 40-50+ cm; weathered sandstone and shale

E8

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till-fluvial fan material

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined; 8

Drainage : Well

Soil Profile Description

L-H 7-0 cm

Ae 0-4 cm; silt loam

B 4-8 cm; silt loam

C 8-40+ cm; clay loam

E9

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined, undulating; 8%

Drainage : Well

Soil Profile Description

L-F 5-0 cm

Ae 0-5 cm; light brownish gray (10YR 6/2) silt loam; friable, non-sticky, non-plastic, soft; clear, wavy boundary (3 to 8 cm thick)

Bm1 5-10 cm; brown to dark brown (7.5YR 4/4) loam; friable, non-sticky, non-plastic, soft; clear, smooth boundary

Bm2 10-15 cm; strong brown (7.5YR 5/6) loam; friable, non-sticky, non-plastic, soft; clear, smooth boundary

C 15-32+ cm; yellowish brown (10YR 5/6) clay loam; friable, slightly sticky, slightly plastic, slightly hard; 20-30%, cherts

E10

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 10%

Drainage : Well

Soil Profile Description

L-F Trace

Ae 0-7 cm; silt loam

Bm 7-14 cm; sandy loam

C 14-24 cm; sandy loam; 20-30%, stones

E11

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer-blanket over bedrock

Surface Expression : Inclined, undulating; 14%

Drainage : Well

Soil Profile Description

L-F 9-0 cm

Ae 0-7 cm; pale brown (10YR 6/3) silt loam; ffriable, non-sticky, non-plastic, soft; gradual, smooth boundary

Btj 7-19 cm; light yellowish brown (10YR 6/4) silt loam; friable, slightly sticky, slightly plastic, soft; few, cherts; gradual, smooth boundary

C 19-34+ cm; yellowish brown (10YR 5/6) silt loam to silty clay loam; 25-35%, cherts

E12

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Saprolite

Landform : Saprolite veneer-blanket over bedrock

Surface Expression; Slope : Inclined; 32

Drainage : Well

Soil Profile Description

L-F 5-0 cm

Ae 0-3 cm; light brown (7.5YR 6/4) silt loam to silty clay loam; friable, slightly sticky, plastic, soft; clear, smooth boundary

Bm 3-13 cm; brown (7.5YR 5/4) silty clay loam; friable, slightly sticky, plastic, soft; clear, smooth boundary

C 13-45+ cm; yellowish brown (10YR 5/4) silty clay; weathered shale; 60-70 , shale fragments

E13

Soil Classification : Orthic Regosol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Undulating, inclined; 8%

Drainage : Moderately well, seepage area

Soil Profile Description

L-F 6-0 cm

Ah 0-8 cm; very dark brown (10YR 2/2) clay loam

C 8-36+ cm; brown to dark brown (10YR 4/3) clay loam to clay

E14

Soil Classification : Orthic Gray Luvisol

Parent Geologic Material : 38 cm of till over saprolite

Landform : Saprolite veneer over bedrock

Surface Expression; Slope : Inclined; 11%

Drainage : Well

Soil Profile Description

L-F 8-0 cm

Ah 0-2 cm

Ae 2-5 cm; grayish brown to light brownish gray (10YR 5.5/2) silt loam; friable, non-sticky, non-plastic, soft

Bt 5-24 cm; yellowish brown (10YR 5/4) silty clay loam; friable, slightly sticky, plastic, slightly hard; many, thin, on ped faces, clay skins; few, cherts

C 24-38 cm; dark yellowish brown (10YR 3/4) silty clay loam; few, shale fragments

IIC 38-48+ cm; very dark brown (10YR 2/2) weathered shale

E15

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined; 29%

Drainage : Well

Soil Profile Description

L-F 6-0 cm

Ae 0-4 cm; silt loam

BM 4-14 cm; silt loam

C 14-28 cm; clay loam; very strong

E16

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined, ridged; 24

Drainage :

Soil Profile Description

L-F [illegible]

Ae 0-8 cm; loamy sand; single grain; loose, non-sticky, non-plastic

Bm 8-19 cm; reddish brown; fine sandy loam

C 19-32+ cm; sandy loam; very stony

E17

Soil Classification : Orthic Regosol

Parent Geologic Material : Fluvial

Landform : Fluvial terrace

Surface Expression; Slope : Level, undulating; 3%

Drainage : Moderately well

Soil Profile Description

AC 0-14 cm; silt loam

C 14-48+ cm; silt loam

E18

Soil Classification : Orthic Gleysol, peaty phase

Parent Geologic Material : 8 cm of loess over till

Landform : Morainal

Surface Expression; Slope : Undulating; 3%

Drainage : Poor

Soil Profile Description

Of 23-15 cm

Oh 15-0 cm

Ah 0-4 cm; black (10YR 2/1) silt loam; friable, non-sticky, non-plastic, soft

Bmg 4-8 cm; grayish brown (2.5Y 5/2) silt loam; many, distinct, reddish brown mottles

Cg 8-34+ cm; very dark grayish brown (10YR 3/2) silty clay loam; many, distinct, reddish brown and grayish mottles; few, cherts

E19

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Saprolite

Landform : Saprolite veneer over bedrock

Surface Expression; Slope : Inclined; 29%

Drainage : Well

Soil Profile Description

L-H 7-0 cm

Ae 0-5 cm; grayish brown (10YR 5/2) loam; friable, slightly sticky, slightly plastic, soft; clear, smooth boundary

Bm 5-11 cm; brown to dark brown (7.5YR 4/4) clay loam; friable, slightly sticky, slightly plastic, soft; gradual, smooth boundary

BC 11-25 cm; brown (10YR 5/3) clay loam; friable, slightly sticky, slightly plastic, soft; many, very small, shale fragments

C 25-40+ cm; very dark grayish brown (10YR 3/2) silty clay; friable, sticky, plastic, hard; many, shale fragments

E20

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal veneer over bedrock

Surface Expression; Slope : Inclined, undulating; 8

Drainage : Well

Soil Profile Description

L-F 5-0 cm

Ae 0-6 cm; white (10YR 8.2) loamy fine sand; 40-60 , cherts

B 6-14 cm; silt loam; 40-60 , cherts

C 14-26 cm; very stony, loam to loamy sand

E21

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Saprolite

Landform : Saprolite veneer-blanket over bedrock

Surface Expression; Slope : Inclined; 23%

Drainage : Moderately well

Soil Profile Description

L-F 8-0 cm

Ae 0-6 cm; light brownish gray (10YR 6/2) silt loam; friable, slightly sticky, slightly plastic, soft

Btj 6-18 cm; grayish brown (10YR 5/2) silty clay loam; firm, sticky, plastic, hard; few, shale fragments

C 18-42+ cm; dark gray (10YR 4/1) silty clay loam - silty clay; weathered shale

E22

Soil Classification : Typic Humisol

Parent Geologic Material : Organic

Landform : Horizontal fen

Surface Expression; Slope : Level; 0%

Drainage : Very poor; water table at 10 cm

E23

Soil Classification : Eluviated Eutric Brunisol

Parent Geologic Material : Till

Landform : Morainal blanket over bedrock

Surface Expression; Slope : Inclined, ridged; 22%

Drainage : Well

Soil Profile Description

L-F 9-0 cm

Ae 0-6 cm; silt loam

Bm 6-14 cm; loam

C 14-42+ cm; silty clay loam

E24

Soil Classification	Orthic Regosol
Parent Geologic Material	Fluvial
Landform	Fluvial terrace
Surface Expression	Undulating
Drainage	Rapidly

Soil Profile Description

C1 0-14 cm; loamy sand-sandy loam

C2 14-32+ cm; gravelly sand

E25

Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Saprolite
Landform	:	Saprolite veneer over bedrock
Surface Expression; Slope	:	Inclined; 28%
Drainage	:	Well

Soil Profile Description

L-F 25-0 cm; mosses

Ae 0-4 cm; light gray (10YR 7/2) silt loam; friable, non-sticky, non-plastic, soft; clear, smooth boundary

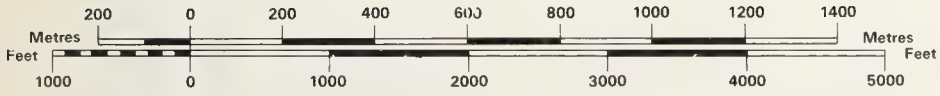
Btj 4-10 cm; brown to dark brown (7.5YR 4/2) clay loam to silty clay loam

C 10-35+ cm; dark grayish brown (10YR 4/2) silt loam to silty clay loam; 40-60%, shale and sandstone fragments

DRY CREEK

PHYSICAL LAND CLASSIFICATION

SCALE - 1:15 000



WEST OF THE FIFTH MERIDIAN

Interpreted by: William Hay and Sudi Kocaoglu.

LAND CLASSIFICATION SECTION
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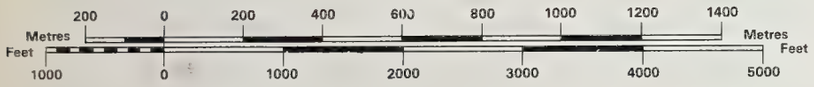
Resource Evaluation and Planning Division

DRY CREEK

PHYSICAL LAND CLASSIFICATION

SCALE - 1:15 000



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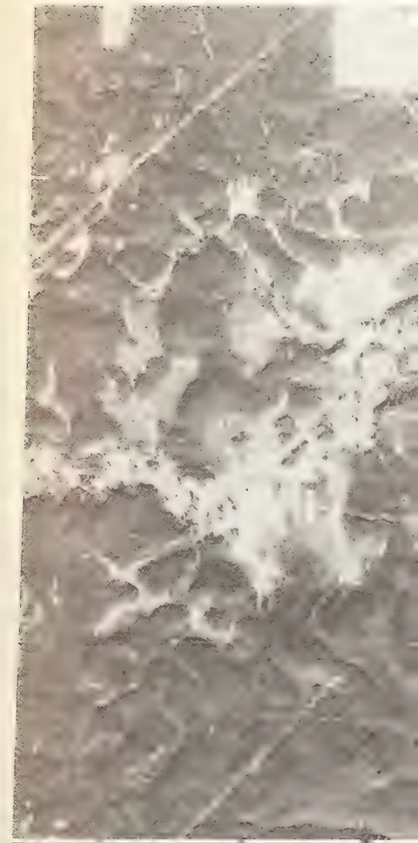

Mb | SiL
Ri | SiCL
7 | E.EB 2
Miu/Ov | SiL / f
Mi | CL / h
4/1 | O.GL/TFI.H 3/6
Mb | SCL
Riu | SCL
5 | E.EB 2
Mv | SiL
Ri | CL
7//6 | E.EB 2
Mbv | fSL
Ri | SiCL
7 | E.EB 2
Mb D | LS
Ri | SL
6//5 | E.EB 2
Mb | SiL
Riu | C
3 | O.GL 3
Miu/Ov | SiL / f
Mi | CL / h
4/1 | O.GL/TFI.H 3/6
Mb D | SiL
Ri | SiCL-SiC
6//7 | E.EB 2
Mb | CL
Riu | C
4 | O.GL 3
Mb D// Ov | SiL // f
Ruh | SiC | h
4-5//1 | O.GL // TFI.H 3//6
Mb D// Ov | SiL // f
Ruh | SiC | h
4-5//1 | O.GL // TFI.H 3//6
Oh | f
1 | TY.M 6
Mb | SiL
Ru | SiCL
3 | BR.GL 3
Ov | f
Mi | h
1 | TFI.H 6
Mb | SiL
Riu | C-SiC
4 | E.EB 2
Ov | f
Mi | m
1 | TFI.M 6
Oh | f
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Ov | f
Mi | h
1 | TFI.H 6
Mb | SiL
Ru | SCL-SiC
3/1 | GL BR.GL /O.G 4/5
Mv | SiL
Rib | gSL
9/8 | E.EB
Mb | SiL
Rim | SiC
6//5 | O.GL
Mb D// Ov | SiL // f
Ri | Mi | h
6//5 | O.GL // TFI.H 3//6
Mb | SiL
Ri | CL-SiCL
6/5 | E.EB 2
36
31
32
33

Tp. 38 R.10

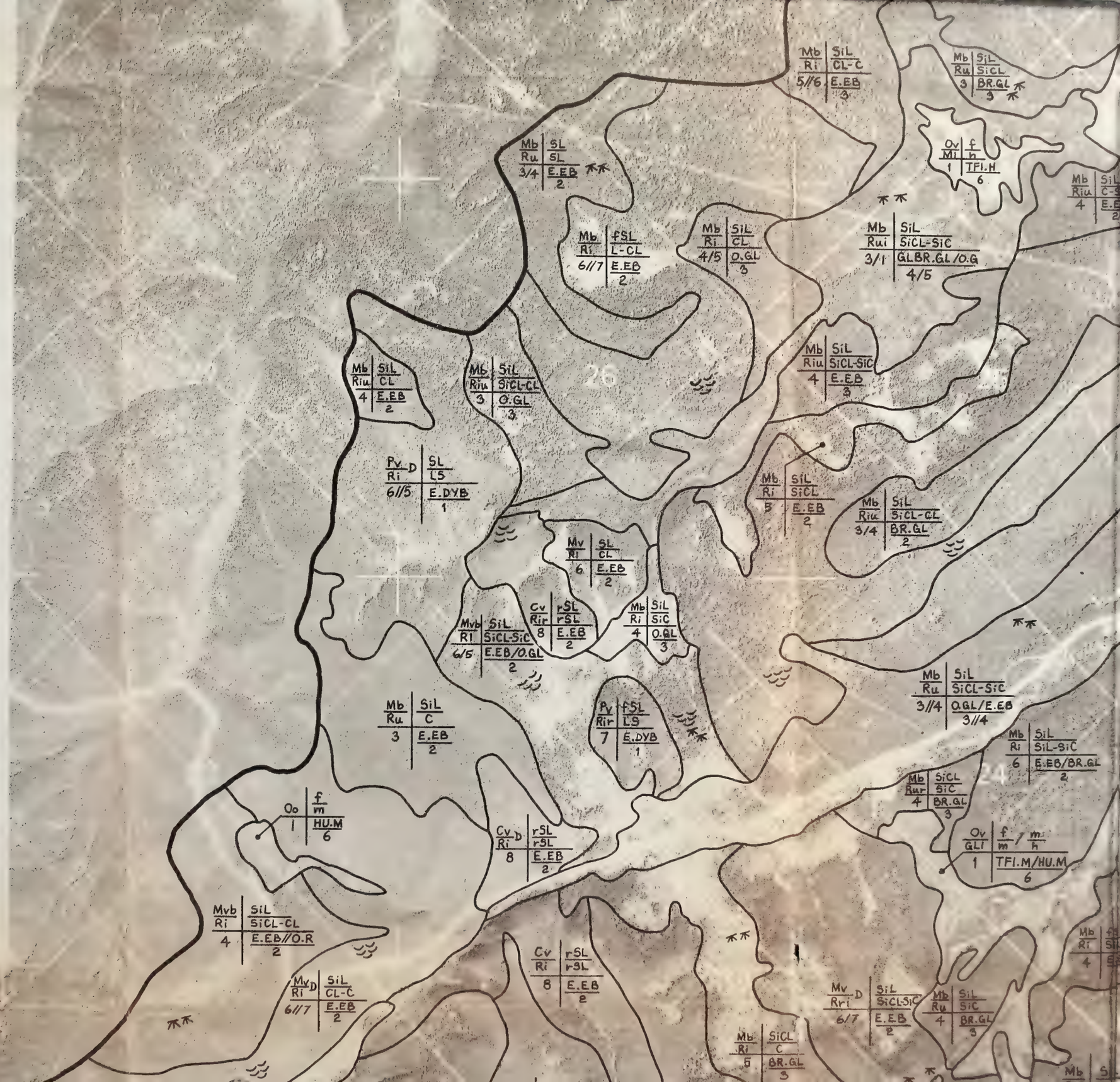
PHYSICAL LAND CLASSIFICATION LEGEND

GENETIC COMPOSITION - Unconsolidated & Consolidated Mineral Components

Symbol	Class	Description
A	Anthropogenic	Man-made or man-modified materials, including those associated with mineral exploration and waste disposal
C	Colluvial	Massive to moderately well stratified, non-sorted to poorly sorted sediments with any range of particle sizes from clay to boulders and blocks that have reached their present position by direct gravity-induced movement
E	Eolian	Sediment generally consisting of medium to fine sand and coarse silt particle sizes that is well-sorted, poorly compacted, and may show internal structures such as cross bedding or ripple laminae, or may be massive Individual grains may be rounded and show signs of frosting These materials have been transported and deposited by wind action
F	Fluvial	Sediment generally consisting of gravel and sand with some fractions of silt and clay The gravels are typically rounded and contain interstitial sand Fluvial sediments are commonly moderately to well-sorted and display stratification, although massive non-sorted fluvial gravels do occur These materials have been transported and deposited by streams and rivers
L	Lacustrine	Sediments generally consisting of either stratified fine sand , silt and clay deposited on the lake bed or moderately well-sorted and stratified sand and coarser materials that are beach and other near-shore sediments transported and deposited by wave action
M	Morainal	Sediment generally consisting of well-compacted material that is non-stratified and contains a heterogeneous mixture of particle sizes, often in a mixture of sand, silt and clay that have been transported beneath, beside, within and in front of a glacier and not modified by an intermediate agent.
U	Undifferentiated	A layered sequence of more than three types of genetic material outcropping on a steep, erosional (scarp) slope
T	Tephra	Unconsolidated pyroclastic sediments of volcanic origin
P	Saprolite	Rock containing a high proportion of residual silts and clays formed by alteration, chiefly by chemical weathering
R	Rock	Consolidated component (bedrock) comprised of materials that are tightly packed or indurated This includes igneous, metamorphic, sedimentary and consolidated volcanic rocks (bedrock)
I	Ice	The ice component includes areas of snow and ice where evidence of active glacier movement is present within the boundary of the defined

SURFACE EXPRESSION - Unconsolidated & Consolidated Mineral Components

Symbol	Class	Description
a	Apron	A relatively gentle slope at the foot of a steeper slope, and formed by materials from the steeper upper slope
b	Blanket	A mantle of unconsolidated materials thick enough to mask minor irregularities in the underlying unit but which still conforms to the general underlying topography
d	Delta	The deposit of clay, silt, sand or gravel made by a stream where it flows into a body of standing water
f	Fan	A fan shaped form that can be likened to the segment of a cone, and possessing a perceptible gradient from the apex to the toe
h	Hummocky	A very complex sequence of slopes extending from somewhat rounded depressions or kettles of various sizes to irregular to conical knolls or knobs There is a general lack of concordance between knolls or depressions
i	Inclined	A sloping, unidirectional surface with a generally constant slope not broken by marked irregularities
l	Level	A flat or very gently sloping, unidirectional surface with a generally constant slope not broken by marked elevations and depressions
p	Pitted	A relatively flat area having prominent depressions or pits
r	Ridged	A long, narrow elevation of the surface usually sharp crested with steep sides The ridges may be parallel, subparallel or intersecting
m	Rolling	A very regular sequence of moderate slopes extending from rounded, sometimes confined concave depressions to broad, rounded convexities producing a wave like pattern of moderate relief Slope length often is 1 6 km or greater and gradients greater than 5%
s	Steep	Erosional slopes, greater than 70% on both consolidated and unconsolidated materials
k	Subdued	A group of linear and non-linear forms with slopes ranging up to 20% with local relief greater than 1 meter Used where landforms which would otherwise be termed undulating rolling, hummocky occur with low relief
t	Terraced	Scarp face and the horizonal or gently inclined surface (tread) above it
u	Undulating	A very regular sequence of gentle slopes that extend from rounded, sometimes confined concavities to broad, rounded convexities producing a wave like pattern of local relief Slope length is generally less than 0 8 km and the dominant slope gradient is from 2 to 5%
v	Veneer	Unconsolidated materials too thin to mask the minor irregularities of the underlying unit surface A veneer ranges from 10 cm to 1


Mb Ri SiL CL-C 5/6 E.EB 3
Mb Ru SiL SiCL 3 BR.GL 3
Ov Mi f h 1 TFl.H 6
Mb Riu SiL C-S 4 E.E 2
Mb SL Ru SL 3/4 E.EB 2
Mb Ri fSL L-CL 6/7 E.EB 2
Mb Ri SiL CL 4/5 D.GL 3
Mb Rui SiL SiCL-SiC 3/1 GLBR.GL/O.G 4/5
Mb Riu SiL CL 4 E.EB 2
Mb Riu SiL SiCL-CL 3 O.GL 3
Mb Riu SiL SiCL-SiC 4 E.EB 3
Pv-D Ri SL LS 6/5 E.DYB 1
Mv Ri SL CL 6 E.EB 2
Mb Ri SiL SiCL 8 E.EB 2
Mb Riu SiL SiCL-CL 3/4 BR.GL 2
Mvb RI SiL SiCL-SiC 6/5 E.EB/O.GL 2
Cv Rir rSL rSL 8 E.EB 2
Mb Ri SiL SiC 4 O.GL 3
Mb Ru SiL SiCL-SiC 3/4 O.GL/E.EB 3/4
Pv Rir rSL LS 7 E.DYB 1
Mb Ri SiL SiL-SiC 6 E.EB/BR.GL 2
Mb Rur SiCL SiC 4 BR.GL 3
Ov GLi f/m m/h 1 TFl.M/HU.M 6
Mb Ru SiL C 3 E.EB 2
Oo f m 1 HU.M 6
Cv-D Ri rSL rSL 8 E.EB 2
Mvb Ri SiL SiCL-CL 4 E.EB//O.R 2
Cv Ri rSL rSL 8 E.EB 2
Mv-D Ri SiL CL-C 6/7 E.EB 2
Mv-D Rri SiL SiCL-SiC 6/7 E.EB 2
Mb Ri SiCL C 5 BR.GL 3
Mb Ru SiL SiC 4 BR.GL 3

Mb	SiL
Ri	SiCL-SiC
3	BR.GL
	3

Oh	f
1	m
	TY.M
	6

Mb D// Ruh	Ov // MI	SiL // f
4-5//1		SiC // h
		O.GL // TFI.H
		3//6

Ov	f
MI	h
1	TFI.H
	6

Mb	SiL
Riu	C-SiC
4	E.EB
	2

Ov	f
MI	m
1	TFI.M
	6

Mv	SL
RiS	gSL
9/8	E.EB
	1

Mb	SiL
Rim	SiC
6//5	O.GL
	3

Ov	f
GLI	m
1	TFI.M
	6

Mb	SiL
Ri	SiCL-C
6//7	E.EB

Mb D// Ruh	Ov // MI	SiL // f
4-5//1		SiC // h
		O.GL // TFI.H
		3//6

Mb	SiL
Ri	CL-SiCL
6//7	E.EB
	2

Mb	SiL
Ri	SiL-CL
5	E.EB
	2

Mb D	SiL
Ru	SiC
3/4	O.GL // O.G
	3//5

Mb	SiL
Riu	C-SiC
4	O.GL/BR.GL
	3

GFv	SL
Ri	gSL
6	E.EB
	1

Mb	SiL
Ri	CL-SiCL
6//7	E.EB
	2

Mb	SiL
Ru	SiCL-SiC
3/4	O.GL/E.EB
	3//4

Mb	SiL
Ri	SiL-SiC
6	E.EB/BR.GL
	2

Ov	f / m
GLI	h
1	TFI.M/HU.M
	6

Mb	fSL
Ri	SiL-SiC
4	E.EB
	2

Mb	SiL
Ru	SiC
4	BR.GL
	3

Mb	SiL
Ru	SiL-CL
3	E.EB/BR.GL
	2

Mb	SiL
Ri	CL-SiCL
6//7	E.EB
	2

30 29 28 24 19 20 21

Gl
FE
LT
FL
Organic Component
B
N
S
H
O

SOIL DRAINAGE

Symbol

1 R d

2 W d

3 W

4 q

5 M

6 V d

ON-SITE GRAPHICS

features such as crevasses, supraglacial moraines, icefalls and ogives

GF	Glaciofluvial	Stratified drift (outwash) transported and deposited by glacial meltwaters that flowed upon, within, under or beyond the glacier
GL	Glaciolacustrine	Stratified sediments with generally alternating course and fine grained laminae (layers) deposited in glacial lakes. Deposits also include ice rafted material and those laid down in deltaic and littoral (beach or shore region) environments
FE	Fluvioeolian	Sediments that have been deposited or reworked by fluvial and eolian processes which may or may not have been active at the same time. The deposits cannot be discreetly separated as fluvial or eolian
LT	Lacustro-moraine	Morainal deposits that may have been directly influenced by lacustrine processes. These deposits generally result from a repeated advance and retreat of a glacier terminus in a lacustrine environment
FL	Fluviolacustrine	Lacustrine deposits that have been partially reworked by fluvial processes

Organic Components

B	Bog	Sphagnum or forest peat materials formed under an ombrotrophic environment due to the slightly elevated nature of the bog tending to be disassociated from nutrient-rich ground water or surrounding mineral soils
N	Fen	Sedge peat materials derived primarily from sedges with inclusions of partially decayed stems of shrubs formed in a eutrophic environment due to the close association of the material with mineral rich waters
S	Swamp	A peat covered or peat filled area with the water table at or above the peat surface. The dominant peat materials are shallow to deep mesic to humic forest and fen peat formed in a eutrophic environment resulting from strong water movement from the margins or other mineral sources
H	Marsh	Deposits comprised of mineral or organic material with a high mineral content, but with little peat accumulation
O	Undifferentiated Organic	Deposits with any of the criteria for bog, fen, swamp or marsh which have not been differentiated

SOIL DRAINAGE

Symbol	Class	Description
1	Rapidly drained	The soil moisture content seldom exceeds field capacity in any horizon except immediately after-water additions
2	Well drained	The soil moisture content does not normally exceed field capacity in any horizon (except possibly the C) for a significant part of the year
3	Moderately well-drained	The soil moisture in excess of field capacity remains for a small but significant part of the year
4	Imperfectly drained	The soil moisture in excess of field capacity remains in subsurface horizons for moderately long periods during the year
5	Poorly drained	The soil moisture in excess of field capacity remains in all horizons for a large part of the year
6	Very poorly drained	Free water remains at or within 30 cm of the surface most of the year

ON-SITE GRAPHICS

Drumlin, drumlinoid ridge — Failing (arrow indicates direction of failure)

Fluting — Piping

Crag-and tail — Gullied

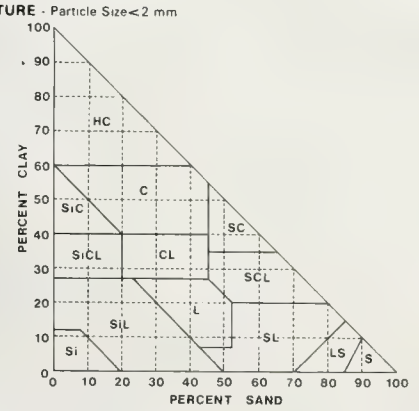
over a bedrock or gravel floor which has been cut and/or deposited by the lateral action of a river

e	Depressional	A low place of any size on a plain surface i.e. a hollow completely surrounded by higher ground and having no natural outlet for surface drainage

Organic Components

b	Blanket	A mantle of organic materials thick enough to mask minor irregularities in the underlying unit, but which still conforms to the general underlying topography
o	Bowl	A bog or fen occupying concave shaped depressions
d	Domed	A bog or fen with an elevated, convex central area much higher than the margin. Domes may be abrupt (with or without a frozen core) or gently sloping or with a stepped surface
f	Floating	A level or flat organic surface associated with very high water tables but without surface water
h	Horizonal	A flat, unidirectional peat surface not broken by marked elevations and depressions
p	Plateau	A bog with an elevated, flat, central area only slightly higher than the margin
r	Ribbed	A pattern of parallel or reticulate low ridges associated with fens
s	Sloping	A unidirectional peat surface with a generally consistant slope not broken by marked irregularities
v	Veneer	A mantle of organic materials too thin to mask the minor irregularities of the underlying unit surface. A veneer ranges from 10 cm to 1 metre in thickness

TEXTURE - Particle Size<2 mm



Textural Classes. Percentages of clay (C) and sand (S) in the main textural classes, the remainder of each class is silt (Si).

(L-Loam)

Particle Size>2 mm

Symbol	Class	Sizes
a	Blocky	angular particles >256 mm
b	Bouldery	rounded particles >256 mm
k	Cobbly	rounded particles 64-256 mm
g	Gravelly	rounded particles 2-64 mm
r	Rubbly	angular particles 2 to 256 mm

Organic Component

Symbol	Class
f	Fibric
m	Mesic
h	Humic
w	Woody
o	Undifferentiated

Note: Where matrix of deposit consists of particles both < 2.0 mm and > 2.0 mm the following guideline is applied

Examples	r	>50% Rubbly matrix
	rSil	Rubbly Silt Loam where Rubble is 25-50% of matrix
	Sil	Silt Loam >75% of matrix

	SZ DG	Solonetzic Dark Gray
	GL DG	Gleyed Dark Gray
	GLR DG	Gleyed Rego Dark Gray
	GLCA DG	Gleyed Calcareous Dark Gray
	GLSZ DG	Gleyed Solonetzic Dark Gray

Cryosolic Order

TC		TURBIC CRYOSOLS
	O TC	Orthic Turbic Cryosol
	BR TC	Brunisolic Turbic Cryosol
	R TC	Regosolic Turbic Cryosol
	GL TC	Gleysolic Turbic Cryosol
SC		STATIC CRYOSOLS
	O SC	Orthic Static Cryosol
	BR SC	Brunisolic Static Cryosol
	R SC	Regosolic Static Cryosol
	GL SC	Gleysolic Static Cryosol
OC		ORGANIC CRYOSOLS
	FI OC	Fibric Organic Cryosol
	ME OC	Mesic Organic Cryosol
	HU OC	Humic Organic Cryosol
	TFI OC	Terric Fibric Organic Cryosol
	TME OC	Terric Mesic Organic Cryosol
	THU OC	Terric Humic Organic Cryosol

Gleysolic Order

HG		HUMIC GLEYSOLS
	O HG	Orthic Humic Gleysol
	R HG	Rego Humic Gleysol
	FE HG	Fera Humic Gleysol
G		GLEYSOLS
	O G	Orthic Gleysol
	R G	Rego Gleysol
	FE G	Fera Gleysol
LG		LUVIC GLEYSOLS
	O LG	Orthic Luvic Gleysol
	HU LG	Humic Luvic Gleysol
	FE LG	Fera Luvic Gleysol
	FR LG	Fragic Luvic Gleysol

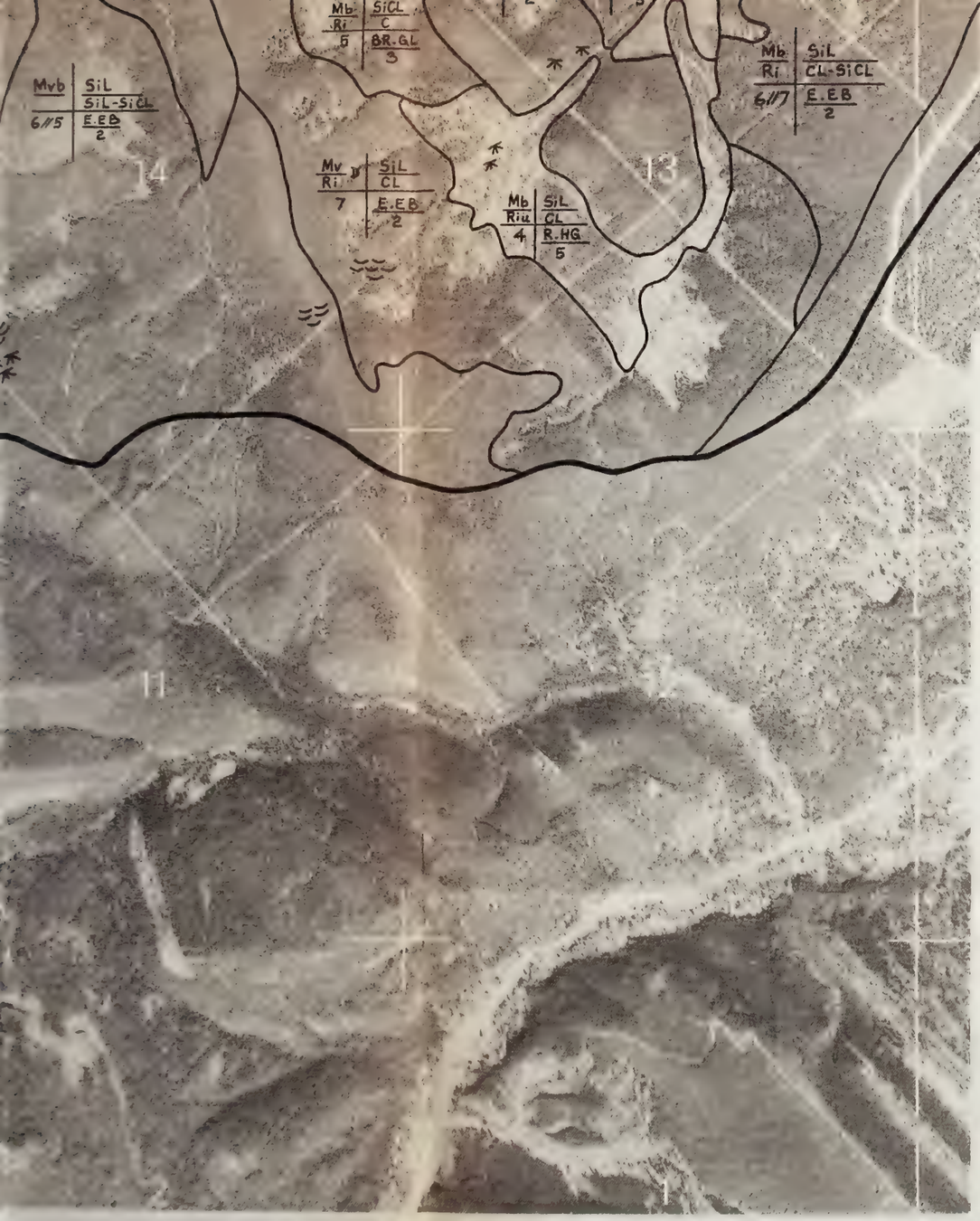
Luvisolic Order

GL		GRAY LUVISOLS
	O GL	Orthic Gray Luvisol
	D GL	Dark Gray Luvisol
	BR GL	Brunisolic Gray Luvisol
	PZ GL	Podzolic Gray Luvisol
	SZ GL	Solonetzic Gray Luvisol
	FR GL	Fragic Gray Luvisol
	GL GL	Gleyed Gray Luvisol
	GLD GL	Gleyed Dark Gray Luvisol
	GLBR GL	Gleyed Brunisolic Gray Luvisol
	GLPZ GL	Gleyed Podzolic Gray Luvisol
	GLSZ GL	Gleyed Solonetzic Gray Luvisol
	GLFR GL	Gleyed Fragic Gray Luvisol

Organic Order

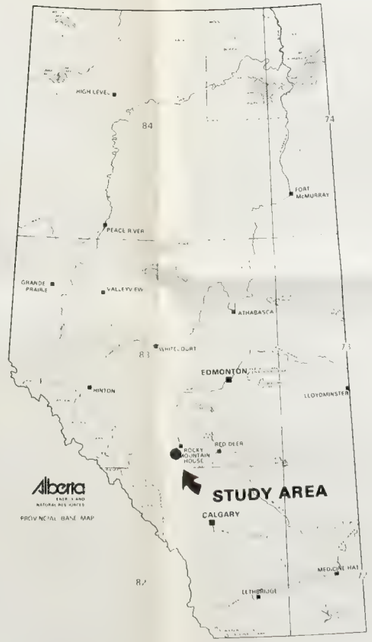
O		ORGANIC-Undifferentiated
F		FIBRISOLS
	TY F	Typic Fibrisol
	ME F	Mesic Fibrisol
	HU F	Humic Fibrisol
	LM F	Limno Fibrisol
	CU F	Cumulo Fibrisol
	T F	Terric Fibrisol
	TME F	Terric Mesic Fibrisol
	THU F	Terric Humic Fibrisol
	HY F	Hydric Fibrisol
M		MESISOLS
	TY M	Typic Mesisol
	FI M	Fibric Mesisol
	HU M	Humic Mesisol
	LM M	Limno Mesisol

Mvb | SiL
Ri | SiCL-CL
4 | E.EB//O.R
2
Cv | rSL
Ri | rSL
E.EB
2
Ri D | CL-C
6//7 | E.EB
2
Fvb | SiL
Mu | CL
Mu | O.EB
3 | 2
Mvb | SiL
SiL-SiCL
6//5 | E.EB
2
Mv | SiL
Ri D | SiL
6//7 | E.EB
2
Pv | SL
Ri D | SL
5//4 | E.EB
2
Mv | SiL
RiS D | SiL
8//9 | E.EB
2
Mv | SiL
Ri | CL
6 | E.EB
2
Mv | SiL
RiS D | SiL
8//9 | E.EB
2
Mv | SiL
Rui | SiL
4//5 | E.EB
2
Mv | SiL
Rui | SiL
4//5 | E.EB
2

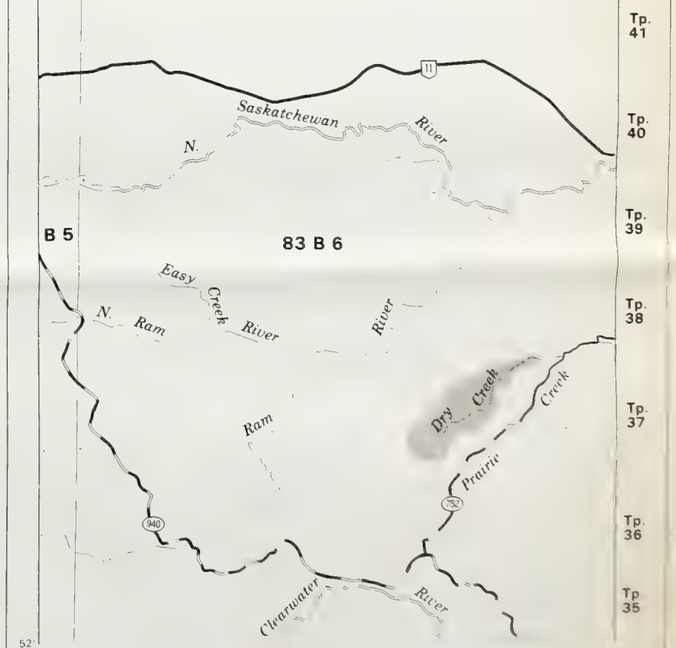


Note: Photo Enlargement Base - Township Corners Approximate

PROVINCIAL LOCATION



DRY CREEK STUDY AREA



SYMBOLIZATION

MODIFIER

SURFACE EXPRESSION

GENETIC COMPOSITION

SLOPE

ASPECT

Symbols of Proportion

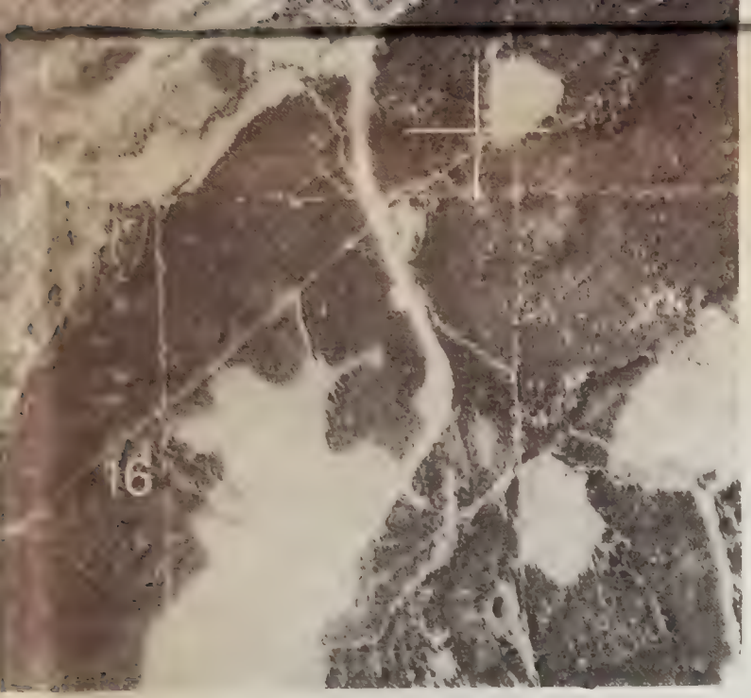
The relative proportions of additional materials

50 - 80%
55 - 70%
70 - 90%

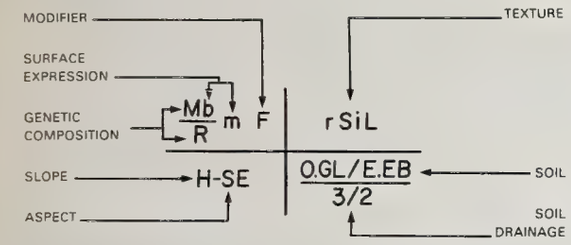
Symbols of Simil

Similarity Symbols

Mb
R
F
SiL
GL E EB
3 2
R. St



SYMBOLIZATION



Symbols of Proportion (=)

The relative proportions of the two-term components are approximately

50-52% - 45-50% (approximately equal)
55-70% / 30-45% (more than)
70-90% / / 10-30% (considerably more than)

*Symbols of proportion do not necessarily correspond in all four quadrants of the symbolization. Where no symbol of proportion is present between two surface expressions it implies that both surfaces are coincidental

Stratigraphic Symbol (——)

The symbol indicates one material overlying another with the overlying material being either a blanket or veneer

ON-SITE GRAPHICS

Drumlin, drumlinoid ridge		Failing (arrow indicates direction of failure)	
Fluting		Piping	
Crag and tail		Gullied	
Glacial Striae, ice direction known		Erratic	
Glacial striae, ice direction unknown		Quaternary Fossil Locality	F
Moraine ridge (end moraine)		Anthropogenic site	H
Minor Moraine Ridges		Landslide scar	
Eskers, direction known		Karst	K
Eskers, direction unknown		Gravel location	G
Kettled		Rock Glaciers	
Glacial meltwater channel, large (arrow indicates direction of flow)		Escarpments	
Glacial meltwater channel, small (arrow indicates direction of flow)		Cirque	
		Seepage	
Abandoned shoreline		Avalanched	
Dunes, active		Block fields	
Dunes, inactive		Soil Creep	

NOTE
ONLY PROMINENT EXAMPLES ARE INDICATED AND MAY NOT REFLECT ALL OCCURRENCES

SLOPE

Symbol		Percent	Degree (approx.)	Terminology
Simple	Complex			
A	1	0-0.5	0	level
B	2	0.5-2.5	0.2-1.5	nearly level
C	3	3-5	1-3	very gentle
D	4	6-9	3.5-5	gentle
E	5	10-15	6-8.5	moderate
F	6	16-30	9-17	strong
G	7	31-45	17-24	very strong
H	8	46-70	25-35	extreme
I	9	71-100	35-45	steep
J	10	>100	>45	very steep

w	Woody	
0	Undifferentiated	

Note: Where matrix of deposit consists of particles both < 2.0 mm and > 2.0 mm, the following guideline is applied

Examples		
	r	>50% Rubbly matrix
	rS	Rubbly S.lt Loam where Rubble is 25-50% of matrix
	Sil	Silt Loam >75% of matrix

MODIFIERS (EROSIONAL and DEPOSITION)

A	Avalanched	Slopes modified by frequent avalanche activity. An avalanche is defined as a large mass of snow, ice, soil or rock or mixtures of these materials, falling or sliding very rapidly under the force of gravity
B	Bevelled	Surface cut or planed by running water but not underlain by fluvial materials
D	Dissected	Areas modified by the cutting of a series of channels
E	Eroded	Surface crossed by a series of abandoned channels
F	Failing	Modification of surfaces by the formation of tension fractures or by large consolidated or unconsolidated masses moving slowly downslope
G	Glaciated	Initial non-glaciated sections of land which has been scoured and worn down by glacial action
H	Kettled	Deposit or feature modified by depression left by melting ice blocks
K	Karst Modified	Modification of carbonate and other rocks by processes of solution, and of overlying unconsolidated materials by collapse resulting from that solution
M	Mass wasted	A variety of processes by which large masses of earth material are moved by gravity either slowly or quickly from one place to another
N	Nivated	Surface modified by frost action, erosion and mass wasting beneath and around a snowbank, so as to produce transverse longitudinal and circular hollows
P	Piped	Surface modified by small hollows, commonly aligned along routes of subsurface drainage, and resulting from the subsurface removal of particulate matter in unconsolidated materials
S	Soliflucted	Surface modified by the process of slow gravitational downslope movement of saturated, non-frozen earth material behaving apparently as a viscous mass over a surface of frozen ground
V	Gullied	Surface modified by fluvial erosion resulting in the development of parallel and sub-parallel, steep-sided and narrow ravines in both consolidated and unconsolidated materials
W	Washed	Modification of a deposit or feature by wave action in a body of standing water, resulting in lag deposits, beaches of lag materials and wave-cut platforms

SOILS

Brunisolic Order

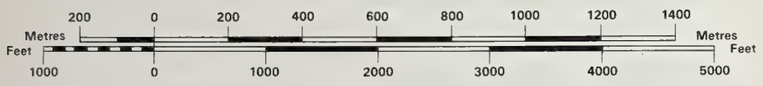
MB		MELANIC BRUNISOLS
	O MB	Orthic Melanic Brunisol
	E MB	Eluviated Melanic Brunisol
	GL MB	Gleyed Melanic Brunisol

DRY CREEK WATERSHED

EROSION POTENTIAL RATING

(A TERRAIN SENSITIVITY APPLICATION)

SCALE - 1:15 000



WEST OF THE FIFTH MERIDIAN

TERRAIN SENSITIVITY RATINGS

1 -Not sensitive
2 -Slightly sensitive
3 -Mildly sensitive
4 -Moderately sensitive
5 -Strongly sensitive
6 -Highly sensitive
7 -Extremely sensitive

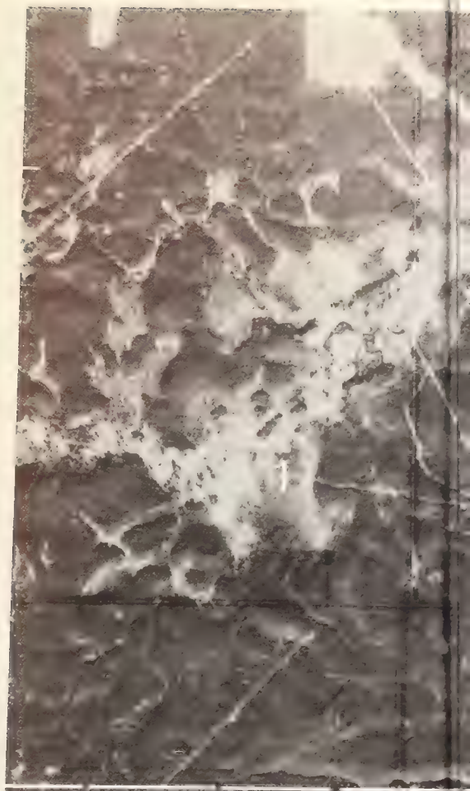
FACTOR CODE LISTING

MAJOR FACTOR CODING	MINOR FACTOR CODING	FACTOR
S	s	slope angle
U	u	fine texture erosion susceptibility
V	v	unstable overlay due to dissection
Z	_	organic unit (arbitrary 1 value)

SAMPLE: MAP CODING AND EXPLANATION

$\frac{6\ Usv}{3}$

6-sensitivity with vegetation removed
U-fine texture erosion susceptibility (major factor)
s-moderate slope angle (minor factor)
v-unstable overlay due to dissection (minor factor)



R.11 R.10
6
1
4
7/3.5 US
4/2.5
6/3 US
3/1.5 U/Iz
2/1
3/1.5 U
36
31
32
33
4.5/2 Uv
4.5/2 Uv
3/1.5 U
IZ

FACTOR CODE LISTING

MAJOR FACTOR CODING	MINOR FACTOR CODING	FACTOR
S	s	slope angle
U	u	fine texture erosion susceptibility
V	v	unstable overlay due to dissection
Z		organic unit (arbitrary 1 value)

SAMPLE: MAP CODING AND EXPLANATION

$\frac{6\ Usv}{3}$

6-sensitivity with vegetation removed.

U-fine texture erosion susceptibility (major factor)

s-moderate slope angle (minor factor)

v-unstable overlay due to dissection (minor factor)

3-sensitivity with present vegetation intact

Interpreted by: William Hay and Sudi Kocaoglu.

LAND CLASSIFICATION SECTION
RESOURCE INVENTORY AND
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Alberta Energy and Natural Resources
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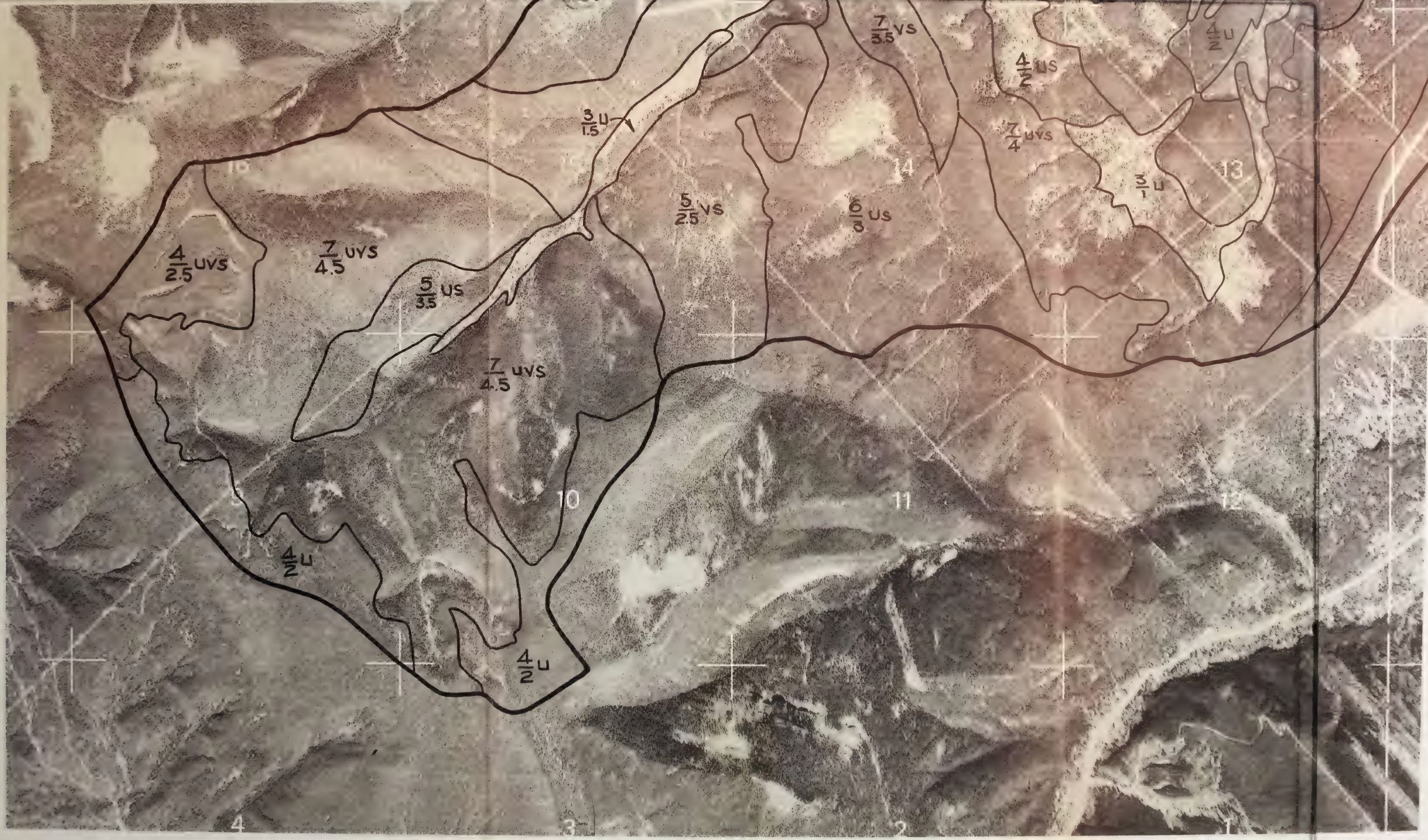
Alberta
ENERGY AND NATURAL RESOURCES
Resource Evaluation and Planning Division

31
32
33
30
29
28
24
19
20
IZ
4.5/2 Uv
6/3 US
5/2.6 US
3/1.5 U
4/2 U
6/3 S
5/1.3 S
3/1 U


$\frac{3}{2}$ U
$\frac{7}{3.5}$ VS
$\frac{4}{2}$ US
$\frac{4}{2}$ U
$\frac{3}{1.5}$ U
$\frac{7}{4}$ UVS
$\frac{3}{1}$ U
$\frac{5}{2.5}$ VS
$\frac{6}{3}$ US
$\frac{4}{2.5}$ UVS
$\frac{7}{4.5}$ UVS
$\frac{5}{3.5}$ US
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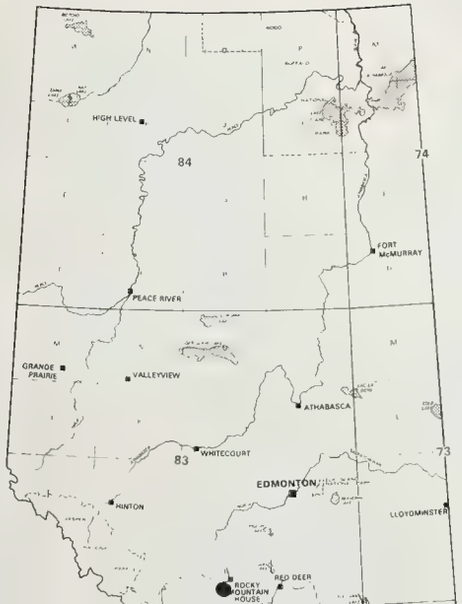
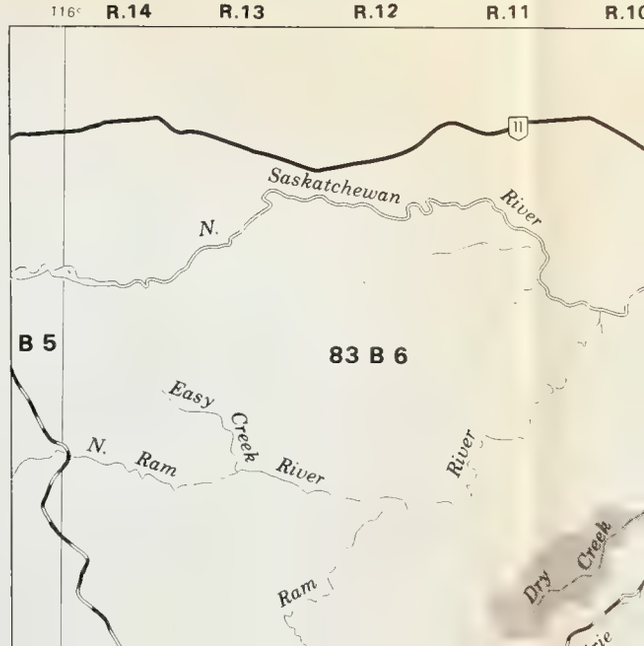
R.11 R.10

PROVINCIAL LOCATION



DRY CREEK STUDY AREA



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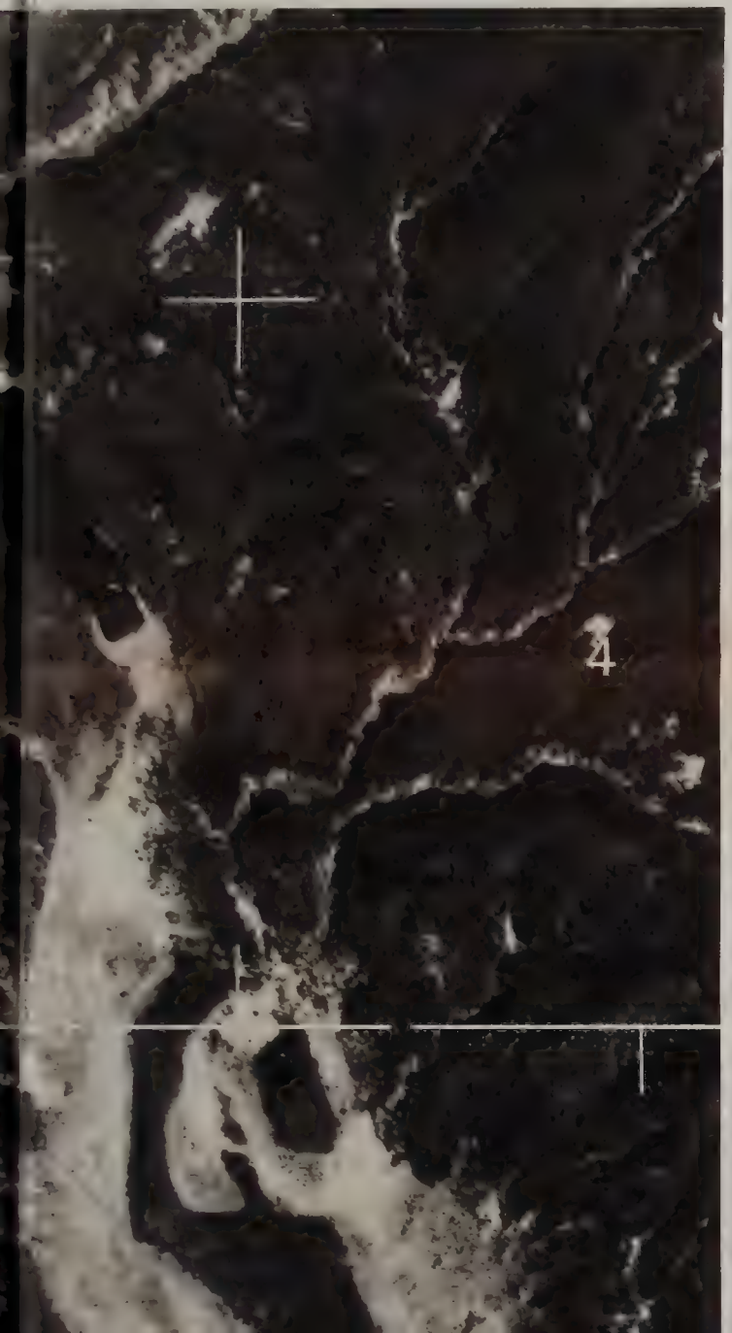
PHYSICAL LAND CLASSIFICATION LEGEND



GENETIC COMPOSITION - Unconsolidated & Consolidated Mineral Components

Symbol	Class	Description
A	Anthropogenic	Man-made or man-modified materials, including those associated with mineral exploration and waste disposal
C	Colluvial	Massive to moderately well stratified, non-sorted to poorly sorted sediments with any range of particle sizes from clay to boulders and blocks that have reached their present position by direct, gravity-induced movement
E	Eolian	Sediment generally consisting of medium to fine sand and coarse silt particle sizes that is well-sorted, poorly compacted, and may show internal structures such as cross bedding or ripple laminae, or may be massive Individual grains may be rounded and show signs of frosting These materials have been transported and deposited by wind action
F	Fluvial	Sediment generally consisting of gravel and sand with some fractions of silt and clay The gravels are typically rounded and contain interstitial sand Fluvial sediments are commonly moderately to well-sorted and display stratification, although massive non-sorted fluvial gravels do occur These materials have been transported and deposited by streams and rivers
L	Lacustrine	Sediments generally consisting of either stratified fine sand , silt and clay deposited on the lake bed or moderately well-sorted and stratified sand and coarser materials that are beach and other near-shore sediments transported and deposited by wave action
M	Morainal	Sediment generally consisting of well-compacted material that is non-stratified and contains a heterogeneous mixture of particle sizes, often in a mixture of sand, silt and clay that have been transported beneath, beside, within and in front of a glacier and not modified by an intermediate agent
U	Undifferentiated	A layered sequence of more than three types of genetic material outcropping on a steep, erosional (scarp) slope
T	Tephra	Unconsolidated pyroclastic sediments of volcanic origin
P	Saprolite	Rock containing a high proportion of residual silts and clays formed by alteration, cheilfly by chemical weathering
R	Rock	Consolidated component (bedrock) comprised of materials that are tightly packed or indurated This includes igneous, metamorphic, sedimentary and consolidated volcanic rocks (bedrock).
I	Ice	The ice component includes areas of snow and ice where evidence of active glacier movement is present within the boundary of the defined unit area This movement will be indicated by features such as crevasses, supraglacial moraines, icefalls and ogives
GF	Glaciofluvial	Stratified drift (outwash) transported and deposited by glacial meltwaters that flowed

SURFACE EXPRESSION - Unconsolidated & Consolidated Mineral Components

Symbol	Class	Description
a	Apron	A relatively gentle slope at the foot of a steeper slope, and formed by materials from the steeper upper slope
b	Blanket	A mantle of unconsolidated materials thick enough to mask minor irregularities in the underlying unit but which still conforms to the general underlying topography
d	Delta	The deposit of clay, silt, sand or gravel made by a stream where it flows into a body of standing water
f	Fan	A fan shaped form that can be likened to the segment of a cone, and possessing a perceptible gradient from the apex to the toe.
h	Hummocky	A very complex sequence of slopes extending from somewhat rounded depressions or kettles of various sizes to irregular to conical knolls or knobs There is a general lack of concordance between knolls or depressions
i	Inclined	A sloping, unidirectional surface with a generally constant slope not broken by marked irregularities
l	Level	A flat or very gently sloping, unidirectional surface with a generally constant slope not broken by marked elevations and depressions
p	Pitted	A relatively flat area having prominent depressions or pits
r	Ridged	A long, narrow elevation of the surface usually sharp crested with steep sides The ridges may be parallel, subparallel or intersecting
m	Rolling	A very regular sequence of moderate slopes extending from rounded, sometimes confined concave depressions to broad, rounded convexities producing a wave like pattern of moderate relief Slope length often is 1.6 km or greater and gradients greater than 5%
s	Steep	Erosional slopes, greater than 70%, on both consolidated and unconsolidated materials
k	Subdued	A group of linear and non-linear forms with slopes ranging up to 20% with local relief greater than 1 meter. Used where landforms which would otherwise be termed undulating rolling, hummocky occur with low relief
t	Terraced	Scarp face and the horizonal or gently inclined surface (tread) above it
u	Undulating	A very regular sequence of gentle slopes that extend from rounded, sometimes confined concavities to broad, rounded convexities producing a wave like pattern of local relief Slope length is generally less than 0 8 km and the dominant slope gradient is from 2 to 5%
v	Veneer	Unconsolidated materials too thin to mask the minor irregularities of the underlying unit surface A veneer ranges from 10 cm to 1 metre in thickness
o	Floodplain	Deposits of alluvium as a veneer or blanket over a bedrock or gravel floor which has been cut and/or deposited by the lateral action of a river
e	Depressional	A low place of any size on a plain surface

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R

		moraines, icefalls and ogives
GF	Glaciofluvial	Stratified drift (outwash) transported and deposited by glacial meltwaters that flowed upon, within, under or beyond the glacier
GL	Glaciolacustrine	Stratified sediments with generally alternating course and fine grained laminae (layers) deposited in glacial lakes. Deposits also include ice rafted material and those laid down in deltaic and littoral (beach or shore region) environments
FE	Fluvioeolian	Sediments that have been deposited or reworked by fluvial and eolian processes which may or may not have been active at the same time. The deposits cannot be discreetly separated as fluvial or eolian
LT	Lacustro-moraine	Morainal deposits that may have been directly influenced by lacustrine processes. These deposits generally result from a repeated advance and retreat of a glacier terminus in a lacustrine environment
FL	Fluviolacustrine	Lacustrine deposits that have been partially reworked by fluvial processes

Organic Components

B	Bog	Sphagnum or forest peat materials formed under an ombrotrophic environment due to the slightly elevated nature of the bog tending to be disassociated from nutrient-rich ground water or surrounding mineral soils
N	Fen	Sedge peat materials derived primarily from sedges with inclusions of partially decayed stems of shrubs formed in a eutrophic environment due to the close association of the material with mineral rich waters
S	Swamp	A peat covered or peat filled area with the water table at or above the peat surface. The dominant peat materials are shallow to deep mesic to humic forest and fen peat formed in a eutrophic environment resulting from strong water movement from the margins or other mineral sources
H	Marsh	Deposits comprised of mineral or organic material with a high mineral content, but with little peat accumulation
O	Undifferentiated Organic	Deposits with any of the criteria for bog, fen, swamp or marsh which have not been differentiated

SOIL DRAINAGE

Symbol	Class	Description
1	Rapidly drained	The soil moisture content seldom exceeds field capacity in any horizon except immediately after-water additions
2	Well drained	The soil moisture content does not normally exceed field capacity in any horizon (except possibly the C) for a significant part of the year
3	Moderately well-drained	The soil moisture in excess of field capacity remains for a small but significant part of the year
4	Imperfectly drained	The soil moisture in excess of field capacity remains in subsurface horizons for moderately long periods during the year
5	Poorly drained	The soil moisture in excess of field capacity remains in all horizons for a large part of the year
6	Very poorly drained	Free water remains at or within 30 cm of the surface most of the year

ON-SITE GRAPHICS

Drumlin/drumlinoid ridge

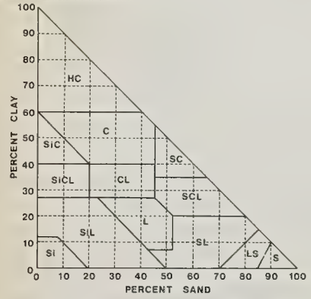
Failing (arrow indicates direction

		over a bedrock or gravel floor which has been cut and/or deposited by the lateral action of a river
e	Depressional	A low place of any size on a plain surface, i.e. a hollow completely surrounded by higher ground and having no natural outlet for surface drainage

Organic Components

b	Blanket	A mantle of organic materials thick enough to mask minor irregularities in the underlying unit, but which still conforms to the general underlying topography
o	Bowl	A bog or fen occupying concave shaped depressions
d	Domed	A bog or fen with an elevated, convex, central area much higher than the margin. Domes may be abrupt (with or without a frozen core) or gently sloping or with a stepped surface
f	Floating	A level or flat organic surface associated with very high water tables but without surface water
h	Horizonal	A flat, unidirectional peat surface not broken by marked elevations and depressions
p	Plateau	A bog with an elevated, flat, central area only slightly higher than the margin
r	Ribbed	A pattern of parallel or reticulate low ridges associated with fens
s	Sloping	A unidirectional peat surface with a generally consistant slope not broken by marked irregularities
v	Veneer	A mantle of organic materials too thin to mask the minor irregularities of the underlying unit surface. A veneer ranges from 10 cm to 1 metre in thickness

TEXTURE - Particle Size<2 mm



Textural Classes. Percentages of clay (C) and sand (S) in the main textural classes, the remainder of each class is silt (Si).

(L-Loam)

Particle Size>2 mm

Symbol	Class	Sizes
a	Blocky	angular particles >256 mm
b	Bouldery	rounded particles >256 mm
k	Cobbly	rounded particles 64-256 mm
g	Gravelly	rounded particles 2-64 mm
r	Rubbly	angular particles 2 to 256 mm

Organic Component

Symbol	Class
f	Fibric
m	Mesic
h	Humic
w	Woody
o	Undifferentiated

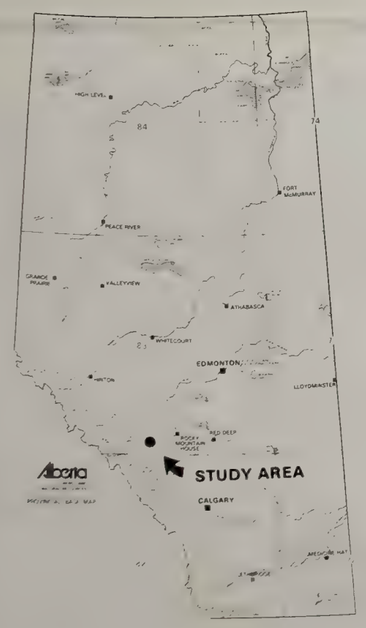
Note: Where matrix of deposit consists of particles both < 2.0 mm and > 2.0 mm, the following guideline is applied

Examples: >50% Rubbly matrix

Rubbly silt (limit-times modifier is 25-50% of matrix

		SZ DG Solonetzic Dark Gray
		GL DG Gleyed Dark Gray
		GLR DG Gleyed Rego Dark Gray
		GLCA DG Gleyed Calcareous Dark Gray
		GLSZ DG Gleyed Solonetzic Dark Gray
Cryosolic Order		
TC		TURBIC CRYOSOLS
	O TC	Orthic Turbic Cryosol
	BR TC	Brunisolic Turbic Cryosol
	R TC	Regosolic Turbic Cryosol
	GL TC	Gleysolic Turbic Cryosol
SC		STATIC CRYOSOLS
	O SC	Orthic Static Cryosol
	BR SC	Brunisolic Static Cryosol
	R SC	Regosolic Static Cryosol
	GL SC	Gleysolic Static Cryosol
OC		ORGANIC CRYOSOLS
	FI OC	Fibric Organic Cryosol
	ME OC	Mesic Organic Cryosol
	HU OC	Humic Organic Cryosol
	TFI OC	Terric Fibric Organic Cryosol
	TME OC	Terric Mesic Organic Cryosol
	THU OC	Terric Humic Organic Cryosol
Gleysolic Order		
HG		HUMIC GLEYSOLS
	O HG	Orthic Humic Gleysol
	R HG	Rego Humic Gleysol
	FE HG	Fera Humic Gleysol
G		GLEYSOLS
	O G	Orthic Gleysol
	R G	Rego Gleysol
	FE G	Fera Gleysol
LG		LUVIC GLEYSOLS
	O LG	Orthic Luvic Gleysol
	HU LG	Humic Luvic Gleysol
	FE LG	Fera Luvic Gleysol
	FR LG	Fragic Luvic Gleysol
Luvisolic Order		
GL		GRAY LUVISOLS
	O GL	Orthic Gray Luvisol
	D GL	Dark Gray Luvisol
	BR GL	Brunisolic Gray Luvisol
	PZ GL	Podzolic Gray Luvisol
	SZ GL	Solonetzic Gray Luvisol
	FR GL	Fragic Gray Luvisol
	GL GL	Gleyed Gray Luvisol
	GLD GL	Gleyed Dark Gray Luvisol
	GLBR GL	Gleyed Brunisolic Gray Luvisol
	GLPZ GL	Gleyed Podzolic Gray Luvisol
	GLSZ GL	Gleyed Solonetzic Gray Luvisol
	GLFR GL	Gleyed Fragic Gray Luvisol
Organic Order		
O		ORGANIC-Undifferentiated
F		FIBRISOLS
	TY F	Typic Fibrisol
	ME F	Mesic Fibrisol
	HU F	Humic Fibrisol
	LM F	Limno Fibrisol
	CU F	Cumulo Fibrisol
	T F	Terric Fibrisol
	TME F	Terric Mesic Fibrisol
	THU F	Terric Humic Fibrisol
	HY F	Hydric Fibrisol
M		MESISOLS
	TY M	Typic Mesisol

PROVINCIAL LOCATION



EASY CREEK STUDY AREA

SCALE - 1:15 000

Metres: 200 0 200 400 600 800 1000 1200 1400 Metres

Feet: 1000 0 1000 2000 3000 4000 5000 Feet

WEST OF THE FIFTH MERIDIAN

EASY CREEK

PHYSICAL LAND CLASSIFICATION

Note Photo Enlargement Base, Township Corners Approximate

Interpreted by: William Hay and Sudi Kocaoglu

LAND CLASSIFICATION SECTION
RESOURCE INVENTORY AND
APPRAISAL
available from:

Alberta Energy and Natural Resources
Alberta Map & Photo Distribution Centre
2nd Floor, North Tower, Petroleum Plaza
9945-108 Street
Edmonton Alberta
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Alberta
ENERGY AND NATURAL RESOURCES
Resource Evaluation and Planning Division

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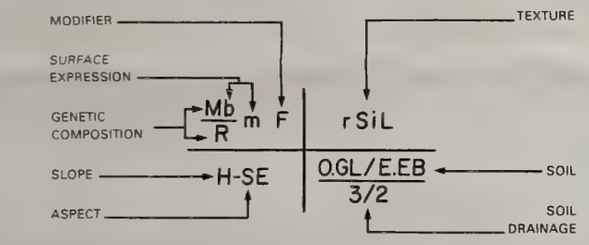
SYMBOLIZATION



Symbols of Proportion (=)

The relative proportions of the two-term components are approximately

50-52% = 45-50% (approximately equal)
55-70% 30-45% (more than)
70-90% 10-30% (considerably more than)

*Symbols of proportion do not necessarily correspond in all four quadrants of the symbolization. Where no symbol of proportion is present between two surface expressions it implies that both surfaces are coincidental

Stratigraphic Symbol (——)

The symbol indicates one material overlying another with the overlying material being either a blanket or veneer

$\frac{Mb}{R}$ m - A morainal blanket overlies bedrock with an overall rolling surface expression

F - The genetic material is failing

rSiL - The texture is a rubbly silt loam

ON-SITE GRAPHICS

Drumlin, drumlinoid ridge		Failing (arrow indicates direction of failure)	
Fluting		Piping	
Crag-and tail		Gullied	
Glacial Striae ice direction known		Erratic	
Glacial striae, ice direction unknown		Quaternary Fossil Locality	(F)
Moraine ridge (end moraine)		Anthropogenic site	(H)
Minor Moraine Ridges		Landslide scar	
Eskers, direction known		Karst	(K)
Eskers, direction unknown		Gravel location	(G)
Kettled		Rock Glaciers	
Glacial meltwater channel large (arrow indicates direction of flow)		Escarpments	
Glacial meltwater channel, small (arrow indicates direction of flow)		Cirque	
		Seepage	
Abandoned shoreline		Avalanched	
Dunes, active		Block fields	
Dunes, inactive		Soil Creep	

NOTE
ONLY PROMINENT EXAMPLES ARE INDICATED AND MAY NOT REFLECT ALL OCCURRENCES

SLOPE

Symbol		Percent	Degree (approx.)	Terminology
Simple	Complex			
A	1	0-0.5	0	level
B	2	0.5-2.5	0.2-1.5	nearly level
C	3	3-5	1-3	very gentle
D	4	6-9	3.5-5	gentle
E	5	10-15	6-8.5	moderate
F	6	16-30	9-17	strong
G	7	31-45	17-24	very strong
H	8	46-70	25-35	extreme
I	9	71-100	35-45	steep
J	10	>100	>45	very steep

Note Where matrix of deposit consists of particles both < 2.0 mm and > 2.0 mm the following guideline is applied

Examples
>50% Rubbly matrix
rSil Rubbly Silt Loam where Rubble is 25-50% of matrix
Sil Silt Loam >75% of matrix

MODIFIERS (EROSIONAL and DEPOSITION)

A	Avalanched	Slopes modified by frequent avalanche activity. An avalanche is defined as a large mass of snow, ice, soil or rock or mixtures of these materials, falling or sliding very rapidly under the force of gravity
B	Bevelled	Surface cut or planed by running water but not underlain by fluvial materials
D	Dissected	Areas modified by the cutting of a series of channels
E	Eroded	Surface crossed by a series of abandoned channels
F	Failing	Modification of surfaces by the formation of tension fractures or by large consolidated or unconsolidated masses moving slowly downslope
G	Glaciated	Initial non-glaciated sections of land which has been scoured and worn down by glacial action
H	Kettled	Deposit or feature modified by depression left by melting ice blocks
K	Karst Modified	Modification of carbonate and other rocks by processes of solution, and of overlying unconsolidated materials by collapse resulting from that solution
M	Mass-wasted	A variety of processes by which large masses of earth material are moved by gravity, either slowly or quickly from one place to another
N	Nivated	Surface modified by frost action, erosion and mass wasting beneath and around a snowbank, so as to produce transverse, longitudinal and circular hollows
P	Piped	Surface modified by small hollows, commonly aligned along routes of subsurface drainage, and resulting from the subsurface removal of particulate matter in unconsolidated materials
S	Soliflucted	Surface modified by the process of slow gravitational downslope movement of saturated, non frozen earth material behaving apparently as a viscous mass over a surface of frozen ground
V	Gullied	Surface modified by fluvial erosion, resulting in the development of parallel and sub-parallel, steep-sided and narrow ravines in both consolidated and unconsolidated materials
W	Washed	Modification of a deposit or feature by wave action in a body of standing water, resulting in lag deposits, beaches of lag materials and wave-cut platforms

SOILS

Brunisolic Order

MB		MELANIC BRUNISOLS
	O MB	Orthic Melanic Brunisol
	E MB	Eluviated Melanic Brunisol
	GL MB	Gleyed Melanic Brunisol
	GLE MB	Gleyed Eluviated Melanic Brunisol
EB		EUTRIC BRUNISOLS
	O EB	Orthic Eutric Brunisol

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6
3/1.5 U
7/4.5 USV
4/2 U.S
3/1.5 U
3/1.5 U
5/2.5 US
4/2 US
7/4 SV
6/3 USV
5/2.5 US
7/4.5 USV
3/1.5 U
4/2 US
33
34
35
36
31
6/3 SV
3/1 U
4/2 US
3/1.5 U
5/2.5 US
4/2 US
4/2 US
4/2 US
6/3 USV
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30
7/4 SV

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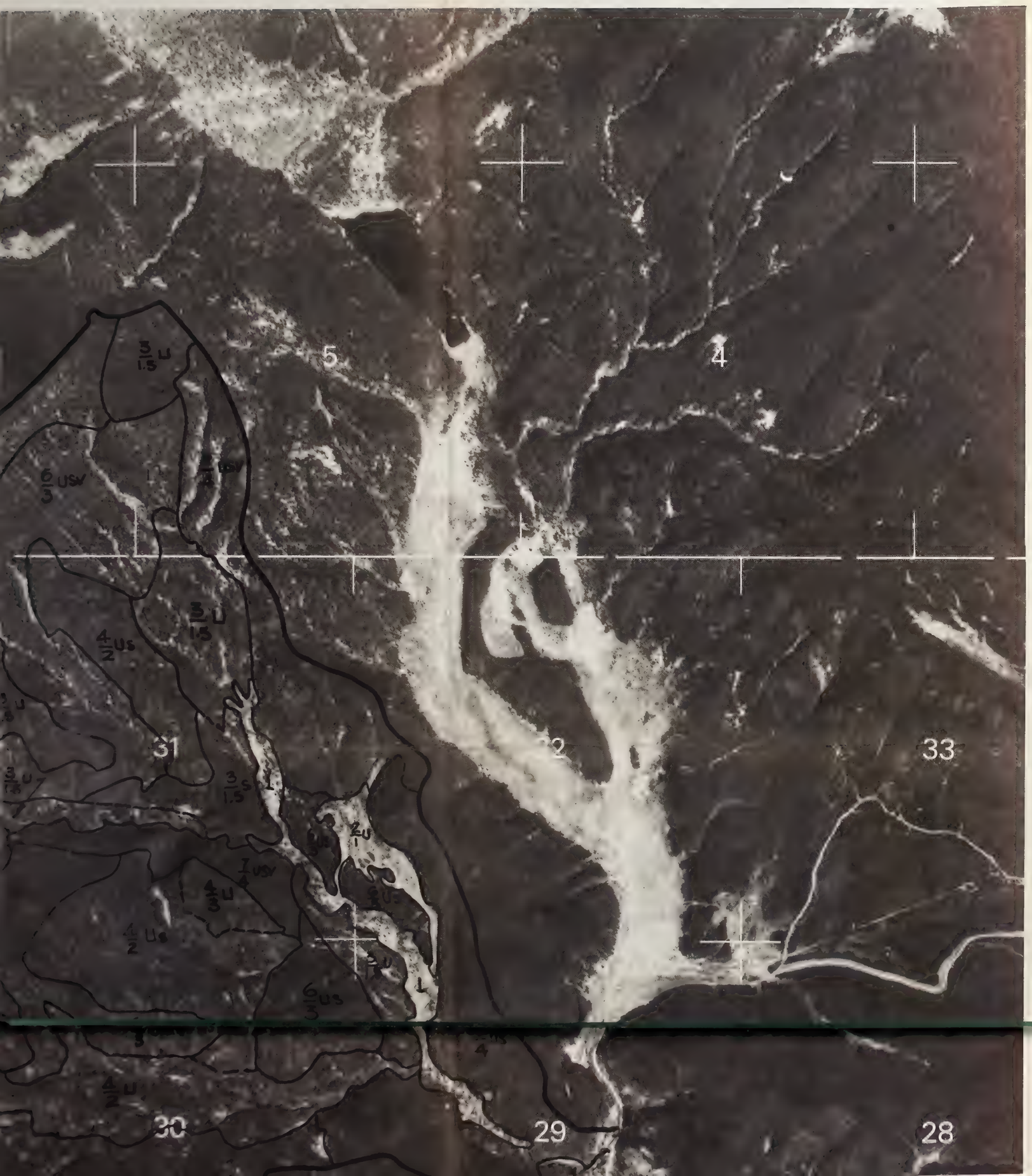

EASY CREEK WATERSHED

EROSION POTENTIAL RATING

(A TERRAIN SENSITIVITY APPLICATION)

SCALE - 1:15 000

200 0 200 400 600 800 1000 1200 1400 Metres

1000 0 1000 2000 3000 4000 5000 Feet

WEST OF THE FIFTH MERIDIAN

TERRAIN SENSITIVITY RATINGS

1 -Not sensitive
2 -Slightly sensitive
3 -Mildly sensitive
4 -Moderately sensitive
5 -Strongly sensitive
6 -Highly sensitive
7 -Extremely sensitive

FACTOR CODE LISTING

MAJOR FACTOR CODING	MINOR FACTOR CODING	FACTOR
S	s	slope angle
U	u	fine texture erosion susceptibility
V	v	unstable overlay due to dissection
Z		organic unit (arbitrary 1 value)

SAMPLE: MAP CODING AND EXPLANATION

$\frac{6}{3}$ Usv

6 -sensitivity with vegetation removed
U -fine texture erosion susceptibility (major factor)
s -moderate slope angle (minor factor)
v -unstable overlay due to dissection (minor factor)
3 sensitivity with present vegetation intact

Interpreted by: William Hay and Sudi Kocaoglu

LAND CLASSIFICATION SECTION
RESOURCE INVENTORY AND
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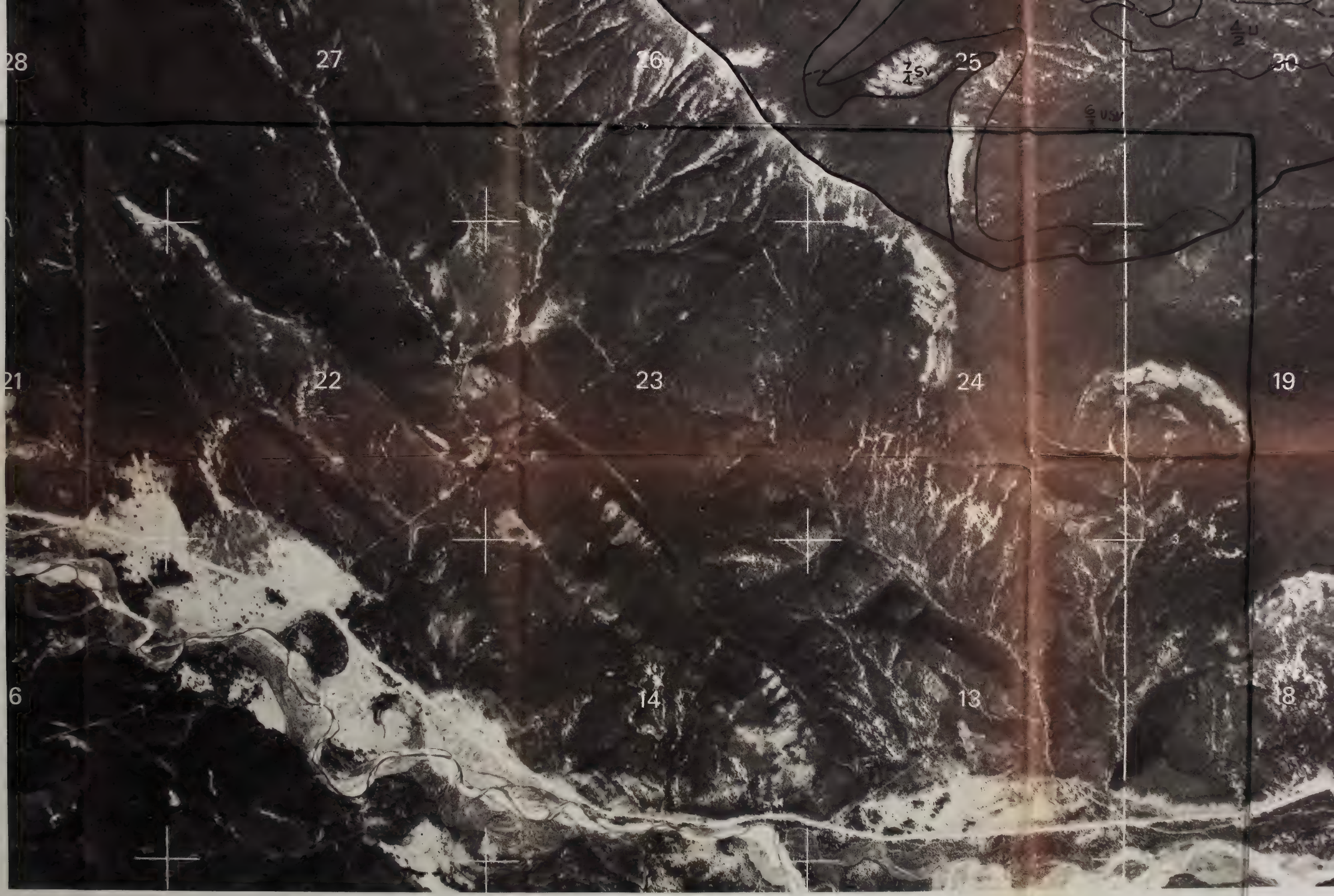
PROVINCIAL LOCATION



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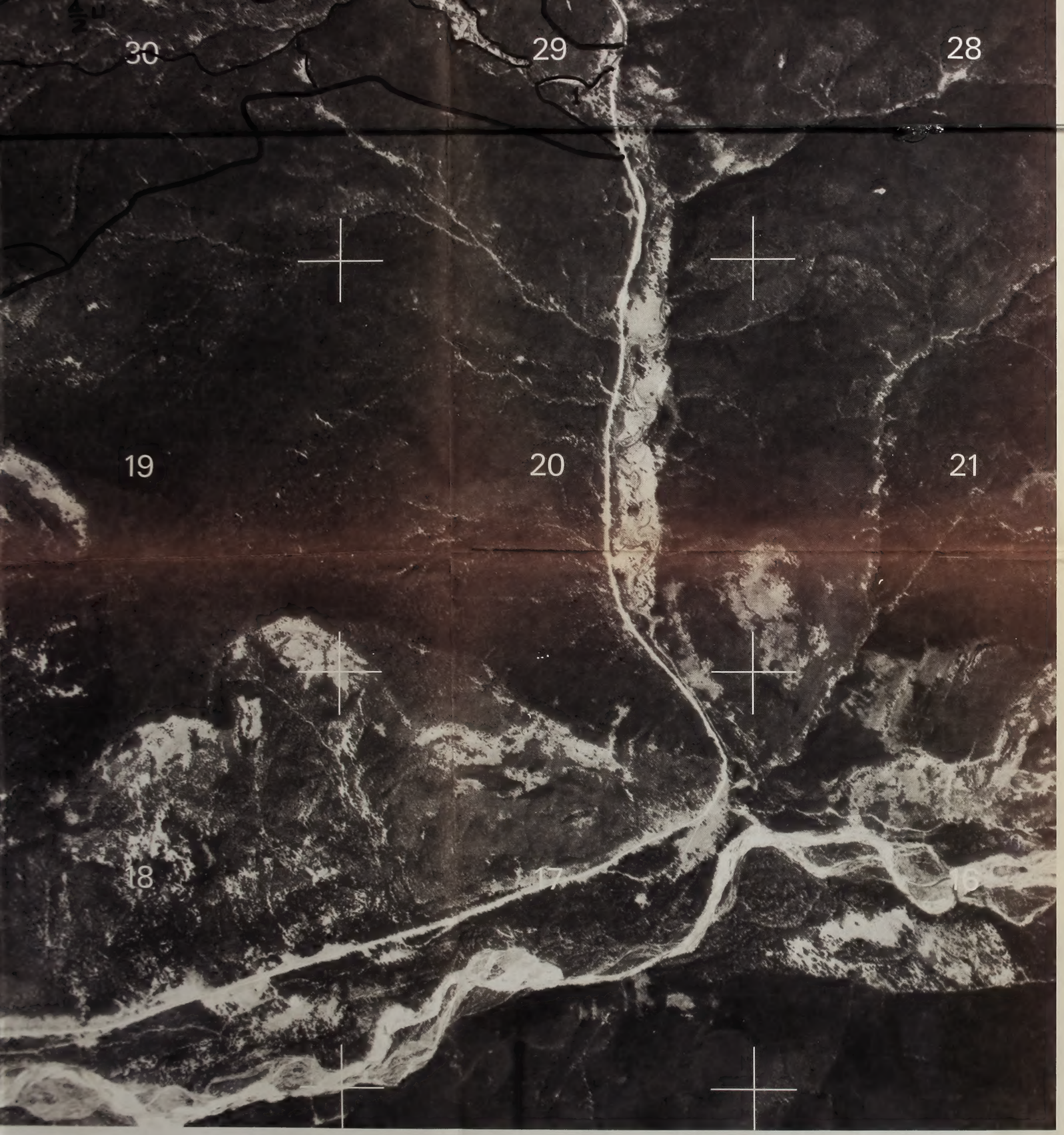

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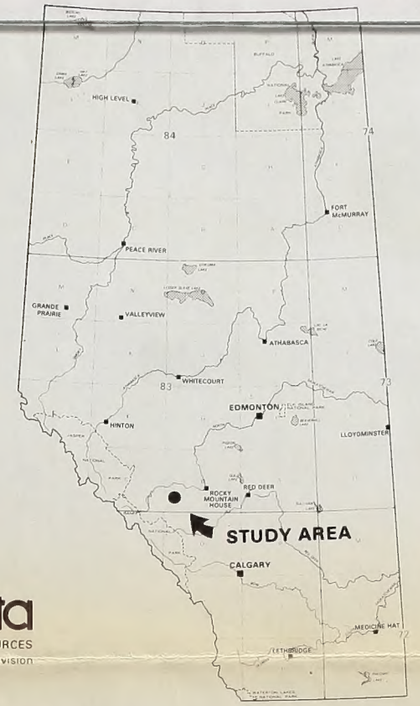

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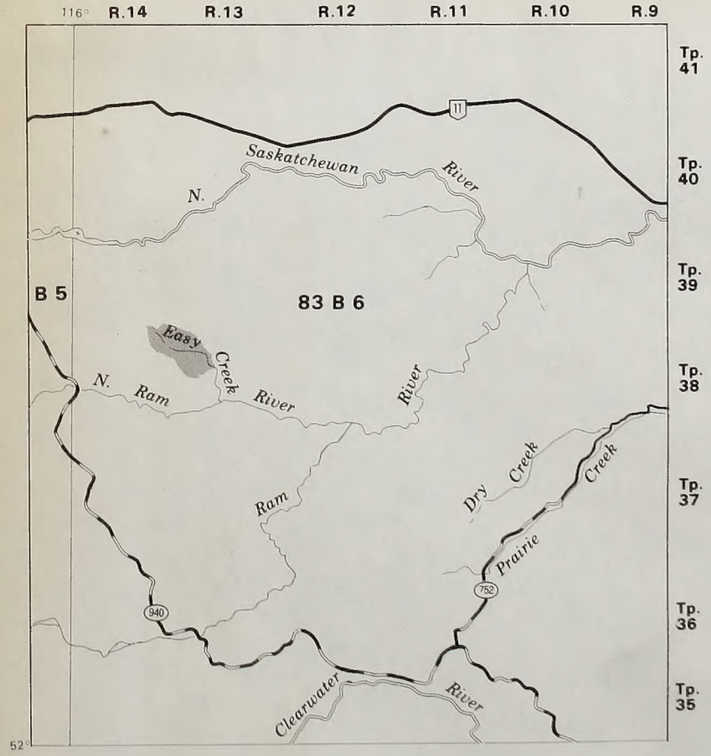
Resource Evaluation and Planning Division

EASY CREEK STUDY AREA



STUDY AREA

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